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Long Island Medical Journal

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SURGERY OF THE PERITONEUM.

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THE surgery of the peritoneum is so closely involved in the surgery of the organs which it envelops and of the walls of the cavity which it lines, that it is difficult to disassociate it from these. There is, however, a propriety in considering the peritoneum as a distinct entity and as having a surgery of its own, for in the recognition of the peculiarities of the peritoneum and its reaction to surgical conditions, depends largely the ability of the surgeon to deal successfully with the organs which it envelops.

Any systematic consideration of the surgery of the peritoneum naturally involves the subjects, (1) traumatisms, (2) infections, and (3) new growths.

In the present communication, however, the subject of new growths of the peritoneum must receive only this mere mention. All growths arising from retro-peritoneal tissue or from the tissue of the various organs covered by the peritoneum would, in any event, be excluded from consideration, only those which are primary in the tissues of the peritoneum itself, being properly classed as peritoneal growths.

Primary tumors of the peritoneum, of any kind, are rare, the most important of them being endotheliomata; primary angiosarcomata and primary carcinomata of the peritoneum have been reported, but as among the rarest of pathological conditions. Such benign conditions as lipoma and fibroma—while it is not possible to absolutely exclude them—nevertheless, may practically in all cases be referred to the retro-peritoneal tissue for their origin. Secondary carcinomata of the peritoneum are of very frequent occurrence. With this mere mention of the new growths of the peritoneum, the subject is dismissed.

Traumatisms.

Under this heading may be included both those more gross lesions in which there is such a distinct solution of continuity that it would be classed at once under the head of a wound, and those lesser, more superficial injuries in which the peritoneal surface is merely more or less irritated, whether by the friction of rough handling or sponging, exposure to the drying influence of the air, the contact of irritating solutions, the presence of blood clots, or of foreign agents introduced for the purpose of drainage.

One of the most notable peculiarities of the peritoneum is the rapidity with which, when exposed to wound or irritation, it throws out an abundant supply of fibrinous lymph which protects the serous surface from further irritation, unites adjacent surfaces, and thus repairs wounds or closes in areas of infection.

Surgeons have learned that the peritoneum, while it is peculiarly liable to infection, possesses in a very marked degree the ability to overcome infection and to rid itself of the products of infection, so that notwithstanding very imperfect applications of the laws guarding against infection in the course of surgical procedures in which it is involved, ultimate recovery of the patient not infrequently still occurs.

Surgeons have learned further that the great capacity for regeneration possessed by the peritoneum is so much more than an offset for its easy vulnerability, that if in any given case conditions can be secured which are reasonably favorable for its reparative energy to be exercised, recovery from severe traumatism or extensive infection may be expected. Upon these two qualities of the peritoneum—rapidity of repair and resistance to infection—depends the success of most of the intra-abdominal surgery of to-day; just as the individual surgeon adopts methods which promote the one, and reduce the need of the other to a minimum, will his results be the most satisfactory.

This regenerative power of the peritoneum, however, has also its unfavorable side, for, in the more or less extensive adhesions which remain as the results of attempts to repair traumatisms or overcome infection, there are created conditions which may entail disability, interfere with function, produce pain, and limit and render extra hazardous subsequent attempts at surgical relief.

For the production of adhesions, it is simply necessary that two damaged peritoneal surfaces should be in contact for a time. The firmness of these adhesions will depend upon the depth to which the serous surfaces have been destroyed; slightly damaged serosa, in contact with healthy serosa, may cause a weak, mayhap an evanescent adhesion; serous surfaces from both of which a superficial exfoliation of endothelium has occurred, become united by fairly strong adhesions, through which, however, a line of cleavage may subsequently be readily formed by the surgeon's effort, with ready separation of the adherent surfaces. The most dense adhesions result when a damaged serous surface comes in contact with a raw surface of denuded muscle or fascia. It is from such dense adhesions as those that, by the continual tug caused by attempts at motion in the adherent organs, intra-peritoneal bands are developed.

In the surgery of the peritoneum the possiblity of adhesions, with their more or less remote disadvantages and dangers, must always engage the attention of the surgeon; first, by way of prevention; second, if already present, to loosen the bound-down organs from their bonds; and, third, after detachment, to prevent their reformation.

The Prevention of Adhesions.

In the surgery of the peritoneum it is a cardinal principle that all unnecessary handling or friction of the serosa should be avoided; only under the compulsion of the most evident necessity, to avoid a greater and more urgent evil, should any considerable evisceration of bowel be permitted, and, above all, should the surgeon refrain from attempts to wipe away or otherwise forcibly detach masses of lymph which may be clinging to the serous surfaces. In those operative procedures in which it is necessary to bring to the surface loops of bowel for any of the forms of anastomosis, those surgeons will have the best results most uniformly, who, with due regard to aseptic technique, are able to complete their work most expeditiously and return most quickly to the protection of the abdominal cavity the exposed loops. An eviscerated bowel means a handled bowel, often a roughly handled bowel in the attempts at its reposition; it means a peritoneal surface exposed to the drying effect of the atmosphere, which can be prevented only by covering with moist towel and compresses, in the accomplishment of which undesirable friction is unavoidable.

It is true that cases do sometimes recover after extensive and prolonged evisceration, but such exceptional instances in no wise lessen the force of the dictum that it is a practice to be avoided as much as possible.

Under the head of a rough handling of the serosa that might be avoided, may possibly be properly included the routine packings with masses of gauze, adopted by many surgeons for isolating an intraperitoneal field. While the importance of such gauze isolation is, in many cases, great and far outweighs its disadvantages, still it has often seemed to me that it was resorted to in some cases unnecessarily, and was inflicting an avoidable traumatism upon the peritoneum. Whenever gauze packing is required, it should be rendered as unirritating as possible by preliminary moistening in a warm normal saline solution. In the same category comes the often unnecessarily thorough sponging out of the peritoneal cavity after irrigation.

In the intraperitoneal technique, of the present day, a frequent use of large and strong tissue clamps is made by some surgeons; these inevitably bruise to a greater or lesser degree the surfaces grasped by them, the degree depending upon the closeness of the grip exercised and the length of time they are kept applied. Their use has very greatly facilitated many procedures, but it should be recognized that there is also a potential evil in them, in view of which their grip should be made as light as is consistent with the fulfillment of the object for which they are used, and the length of time they are kept applied should be reduced to a minimum.

The introduction of irritating antiseptic solutions into the peritoneal cavity has for long received the merited condemnation of surgeons as quite inefficient as an antiseptic measure, while highly objectionable from its irritative effects upon the peritoneal surfaces with which it came in contact. For irrigating the peritoneal cavity the use of an abundant stream of a bloodwarm solution of common salt, of the specific gravity of the blood serum,—physiological saline solution (roughly, one teaspoonful of salt to the quart of water)—is now generally accepted as the ideal means of cleansing that cavity. In using it, without evisceration of the bowel, to secure its full effect the fluid in full stream with some force must be introduced among the bowel coils to the bottom of the various sulci of the peritoneum, one after the other, preferably through a glass tube of a half-inch or more diameter, while provision is made for the free escape through the external wound. By this means foreign materials are most certainly washed out, pus accumulations are cleared, and blood clots are dislodged with the least amount of traumatism to the peritoneum.

The presence of blood clots, even in minute quantities, in the peritoneal cavity, has been demonstrated to be a prolific cause of adhesions. It behooves every surgeon, therefore, in his peritoneal work not only to avoid sepsis, but also to be scrupulous in securing hemostasis, if he would avoid adhesions.

The application of mass ligatures, notably to bulky pedicles of broad ligament or omental tissue, so frequently resorted to, leaves behind in the peritoneal cavity on the distal side of such ligatures, masses of strangulated tissue, practically foreign material, which have later to be removed by absorption or to become revascularized after a period of feeble nutrition by osmosis from neighboring tissue. There are many possibilities of failure in this process, and a ready field for microbic invasion is offered by such a dead or feebly nourished mass while it exists. The formation of free adhesions between such a stump and whatever serous surfaces may lie in contact with it, is practically certain.

In the earlier history of ovariotomy and of pelvic surgery, such mass pedicle ligations were the rule, and the accidents and disadvantages attending such practice are written not only in the mortality rate of that period, to the making of which it in part contributed, but also in the prolonged convalescences, frequent abscesses and sinus formations and persistent pain and disability which attended the recovery in many cases, but which do not receive such certain record.

In the most favorable cases, the thick and strong ligatures that are required to firmly tie such masses, present, in themselves, foreign bodies that continue peritoneal irritation until they are encapsulated or are gotten rid of after an undesirable expenditure of the solvent powers of the adjacent tissues. The dangers and disadvantages that are inherent in such strangulated masses themselves, has been attributed to an undue degree to these ligatures. Such ligatures are in all conscience objectionable enough, but they are only a part of a harmful whole.

In the effort to get rid of the ligatures have been devised the various models of crushing clamps, or angiotribes, so called, used alone or associated with a cautery to the stump, engines for the wholesale hemostasis of masses of tissue, leaving behind a long line of crushed and devitalized tissue to invite adhesions and infection. Their use smacks of a mechanical surgery in which anatomical knowledge and the definite application of a certain and delicate surgical technique is disregarded.

In intraperitoneal work, just as in all other portions of the body, in the great majority of instances bleeding may be controlled by the judicious application of ligatures to certain readily identified vessels of supply. The best results will certainly attend that surgeon who restricts the application of his ligatures to specific and isolated bleeding points, and who uses therefor ligatures of very moderate size and of absorbable material.

It is true that instances of telangiectasis are now and then met with that can only be successfully dealt with by means of mass ligatures, clamps and cautery. For these exceptional cases such means are essential, despite any secondary and remote drawbacks that may follow their use. A more frequent and really more difficult condition to cope with is found in cases where, as a result of the enucleation of tumors or the separation of well-organized adhesions, a broad surface is left from which a free capillary oozing obstinately continues. In such cases the pressure of a tampon is required and must be resorted to, in the face of the certainty of the adhesions which its presence is sure to provoke.

A further and most important means of preventing adhesions and securing a smooth aftercourse in cases where peritoneal denudations have been necessary, is the restoration of a continuous peritoneal covering over the raw surfaces left. This should be done whenever possible and to as great a degree as possible, as part of the toilette of the peritoneum at the close of all peritoneal operations. I have never regretted the time required for such peritoneal plastic work, and often have been amazed and delighted at the smoothness of the afterhistory of cases in which it had been possible to thus cover the surfaces left after extensive invasions of retroperitoneal spaces or resections of peritoneal coverings. Especially is this practice available and important in much of pelvic work in which the spaces left by the removal of the uterus or the enucleation of a broad ligament tumor may almost always be readily covered in by a peritoneal diaphragm which will close off from the general peritoneal cavity above the deeper raw spaces, which can be drained through the vagina. The pedicle of a large ovarian cyst may usually be folded upon itself so as to bury its raw edge; the stump left at the brim of the pelvis after the removal of a tubo-ovarian mass may always be covered in by a fold from the adjacent peritoneum; the stump left after an appendectomy may be covered in by a purse-string suture applied to the cæcum about its base. The raw surface left on the under surface of the liver after the removal of a gall-bladder is not so easily covered in; the adjacent omentum suggests itself as the source from which to draw a covering here.

Denuded bowel surfaces may sometimes be covered in by an infolding of the injured bowel-wall secured by suturing; where this is impracticable, an omental covering may be resorted to.

The proposition of Morris, to make use of a cover of a sheet of absorbable membrane, prepared from the peritoneum of the ox, as a protection to a denuded bowel surface until the normal epithelial covering could be restored, is an attractive one, but I have personally never been able to overcome my repugnance to leaving behind in the peritoneal cavity such a foreign body, and hence have no experience of my own upon which to base an opinion as to its value. The recently published studies of Craig and Ellis ("Annals of Surgery," 1905, XLI, 801), however, upon the results of its use in the peritoneal cavity of dogs, are not encouraging as to its value; indeed, their conclusion was that it had no value in preventing adhesions, but that in every instance the membrane, until absorbed, appeared to act as a foreign body and as an irritant. The suggestion, also, to use a film of aristol powder as a cover to denuded peritoneal surfaces to prevent adhesion, seems open to the same objections, although the happy, clinical experience of Morris in its use must be accorded great weight as an offset to any theoretical objections.

As a final, but important, element in the problem of the prevention of adhesions in the surgery of the peritoneum comes the subject of *Drainage*. The question whether or not to drain must, of course, be a matter largely of individual judgment in the particular case. Certain general principles, however, may be accepted as now well settled; a bleeding cavity or an infected cavity, which it is impracticable to thoroughly disinfect, should be drained. The peripheral regions of the abdomen lend themselves best to direct drainage; the sub-hepatic and the post-colonic regions, through stab-openings in the loins; the appendicular region, through incision in the right iliac region; the pelvis, through the vagina or above the pubis. A walled-off cavity, all the recesses of which may be reached through a free external incision, may be packed up to the surface with iodoform gauze; other cavities, more deeply situated or the depths of which are not so freely accessible, should be drained by glass or rubber tubes of large calibre.

The thrusting of masses of uncovered gauze in among coils of intestines for the drainage of intestinal interspaces, is of but little value for drainage purposes; they quickly become clogged with fibrinous exudate, and cease to drain; they act as foreign bodies to intensify local peritoneal irritation, and along their whole track determine dense adhesions among the adjacent serous surfaces. Whenever capillary drainage seems indicated, it is perhaps best effected by the insertion to the bottom of the space to be drained of one or more good sized rolls of ordinary lamp-wicking, or of hygroscopic gauze, the greater part of which is protected by a smooth, non-adhesive covering of rubber tissue. By such a device, the least amount of peritoneal irritation will be caused and a minimum amount of adhesions be produced.

Infections.

Passing to the subject of Peritoneal Infections, a very close relation between the observations already made upon traumatisms and the results of infection, is found to exist in the important fact that while a normal peritoneum may dispose of comparatively large quantities of infective matter, chemical or mechanical irritation of the peritoneum, and especially the presence of peritoneal wounds or abrasions, interferes markedly with this self-protective power and favors the development of the worst phases of infective invasion. In the presence of possible or evident infection, the protection of the peritoneum as perfectly as possible from traumatism is of the highest importance in the surgical contest with an infection.

The malignancy of a peritoneal infection will depend, first, on the virulence and amount of the organisms that are introduced, and second, upon the energy and extent of the local leucocytic reaction which is awakened, whereby is determined either the localization of the process, or its progressive diffusion. In the event of the failure to form adhesive barriers to its diffusion, the ultimate result must still be affected by the capacity of the peritoneum for absorption, by the individual resistance of the patient, and by the time and character of the surgical interference that is resorted to.

The great majority of the cases of acute spreading infection of the peritoneum that occur belong to the class of *Perforative Peritonides;* that is, by the rupture of an infected appendix or gall-bladder, by the giving way of an ulcer of the stomach or duodenum, the peritoneum receives a quantity of virulently infective material too great for it to dispose of by absorption or by the barricade of adhesions. To the consideration of the possibilities of surgical intervention in such cases the remainder of this communication must be devoted.

Two dangers immediately threaten a patient who has met with such a calamity; in the more virulent case, the general septic intoxication by absorption of the products of the infection so quickly declares itself that it proves rapidly fatal by the paralyzing effect of the toxines upon the vaso-motor and respiratory centres. More commonly a less profound and immediate general intoxication occurs; the prolongation of the local process gives rise to an abundant sero-purulent effusion in the abdomen. Pari passu an intestinal paralysis develops, due presumably to the toxic action of the toxines and invading microbes upon the sympathetic plexus—the plexus of Auerbach—which presides over the movements of the intestinal musculature. This paralytic ileus soon adds its own quota of sepsis to the primary condition; the double infection spreads rapidly, and after a contest of a few days' duration, death closes the scene.

The opportunity of the surgeon for good in such cases is greatest if he can intervene before there has been great extension of the infection and before the appearance of intestinal paralysis. The earlier, therefore, such a case can be brought to operation, after perforation has occurred, the greater the hope of ultimate recovery. No case, however, should be considered hopeless which is not already plainly moribund, although it is too often the case that the best directed efforts of the surgeon are not able to save life. The proportion of recovery, even in advanced cases, that has rewarded surgical effort, has steadily increased during the past ten years from one of practically nothing at the beginning of that period, to one of more than fifty (50), possibly of seventy-five (75) per cent., at the present date.

This has been due to improvements in operative methods and in after-treatment as a better understanding has been reached as to the reaction of the peritoneum to sepsis and to traumatism. Nothing has contributed more to this great improvement than the demonstration of the value of the elevated trunk, or semi-sitting, position after operation, coupled with drainage from the pelvis. This we owe largely to George R. Fowler.

A second and important factor has been the abandonment of time-consuming, shock-producing efforts at cleansing the peritoneal cavity; such efforts inevitably inflict such traumatism upon the peritoneal surfaces and lessen their ability to carry on the further contest with infection, not only by the traumatism inflicted but also by opening up increased surfaces for absorption of toxines just in proportion as the sheets of lymph are washed away from their areas of attachment. For these measures are substituted simply the relief from pressure afforded by a free incision of the abdominal wall, and the spontaneous escape of all fluids under pressure.

In the present more successful practice, the peritoneum is left to its own undisturbed resources to deal with infection; the function of the surgeon is thus largely limited, after the removal, if possible, of the original source of infection, to providing by proper means of drainage against the further accumulation of secretions under pressure.

A precious resource yet remains, and one of the highest value in supporting the peritoneum in its struggle, viz., the surcharging the vascular system with water whereby toxines are diluted, elimination, especially through skin and kidneys, is stimulated, and the lymphatic current of the peritoneal surfaces is changed from one of absorption to one of secretion. An intravenous infusion of normal saline solution on the table as a part of the primary operation inaugurates this branch of the treatment, and it is continued thereafter by frequent rectal enemata of the same fluid, or by a continuous slow installation of the solution into the rectum as suggested and practiced by Murphy.

The final feature of the practice of to-day is the suppression of peristalsis as far as possible; all foods and liquids by the mouth are withheld; lavage is resorted to for emptying the stomach of accumulations of putrid fluids that may regurgitate into it, and morphia is administered as may be borne.

TYPHOID APPENDICITIS.*

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TYPHOID appendicitis is not as simple a matter either pathologically or clinically as its name indicates. We have to deal with all the varieties of appendicitis per se and to these may be added true typhoidal elements.

Clinically the disease is far easier to study than to work out the true pathological conditions. Clinically we have the following classification:

1. Appendicitis preceding typhoid fever occurring some seven to ten days before the development of the typhoid. These are cases of appendicitis which may or may not have typhoidal elements in their causation. The symptoms are typical of appendicitis. There is leucocytosis with a high percentage of polymorphonuclear neutrophiles. Clinically these cases cannot be differentiated from each other. Microscopically in those cases which are the prodromal lesion of a later typhoid will be found evidence of typhoid.

2. True typhoid appendicitis occurring at the onset of typhoid fever and rapidly followed (in two or three days) with indubitable evidence of typhoid. Clinically these cases are mild in character, though the onset is sudden and the initial pain severe. These are the cases usually seen and in which the question of differential diagnosis is most frequently asked. Pathologically they are cases in which the appendix is markedly involved in the typhoid process, but in which secondary infection of pus organism does not as a rule occur. These are true cases of typhoid fever, with sufficient in-

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* Part of discussion on typhoid fever before the Verein Deutscher Aertze, October, 1906.

volvement of the appendix in the typhoid process to produce localizing symptoms. As before stated, the appendical involvement is mild in character, the initial pain, tenderness and slight rigidity subsides quickly, the initial leucocytosis recedes, and the case pursues a typic typhoid course. These cases must be watched carefully for a recurrence of the localizing symptoms, for the locus minoris resistentiæ, for perforation exists in the appendix in these cases. Nor is the danger over even when convalescence is well established, nor even months afterward, for the appendix being at its best of but slight resisting power, may have been so injured by ulceration of its mucosa as to fall an easy prey to later infection. Such late infection can usually be supposed to have its predisposing cause in the typhoid fever if the history of symptoms of appendicitis during the course of the preceding typhoid fever can be obtained. It may be possible to obtain a typhoid culture in these cases.

3. Appendicitis may complicate typhoid at any time in the course of this disease. Such complication is accompanied by typical symptoms of appendicitis in its various forms. It is to be differentiated from typhoid involvement of the appendix going on to perforation, from localized peritonitis in the right iliac region due to transudation of infection without perforation in the neighborhood, and from perforation without localization in this region. In the differentiation of these various conditions we are aided by the character of the initial symptoms. Progressive symptoms with slowly increasing leucocytosis are in all probability due to appendicitis (which may go on to perforation), or to transudation of infection with localization proceeding pari passu. Sudden symptoms with rapidly high leucocytosis and excess of polymorphonuclear neutrophiles point to perforation, which may be in the appendix or in the lower ilium.

4. Appendicitis may follow typhoid after several months. These cases are susceptible of division into two classes, (a) true appendicitis; (b) appendicitis having its predisposing cause in the typhoid infection. The latter has been discussed in Class 2. Both varieties may follow any of the devious courses of appendicitis.

Concerning the latter may be added the observation that latent typhoid germs may cause a late appendicitis, just as latent typhoid infection causes cholecystitis or abscess in other tissues.

With all the complexity of symptoms and conditions the question naturally arises: What is one to do in an individual case? The first question to be answered is what gives the patient the best chance for final recovery. In Class 1 this question is answered by treating the case on its merits as one of appendicitis, with no thought of typhoid fever element. If operation is done, and in the author's experience operation is always indicated when the diagnosis has been assured, no harm is done the patient, for the offending organ is easily removed, and the operation has no unfavorable effect upon the course of the typhoid fever, should such fever follow.

In dealing with Class 2 we have cases in which the skilled diagnostician is uncertain as to the character of the case. The onset of the general indefinite symptoms of typhoid precede the sharp attack of appendicitis. One is uncertain whether the case is one of true appendicitis, or the early involvement of the appendix in a typhoid inflammation. In such cases, if the symptoms are not indubitably those of appendicitis and be not severe, the consensus of opinion is to wait. To my mind, if the *symptoms are sufficiently pronounced to warrant the diagnosis of appendicitis, it is best to operate.* The operation is not severe; in our own hands it rarely takes longer than ten minuts, and is attended by slight, if any, shock. Having made our diagnosis and removed the inflamed appendix, we no longer need worry over the possibility of later infection (*vide* Class 2), at a time when the patient is very ill-fitted indeed to stand operative interference of any kind.

In the treatment of Class 2, appendicitis occurring in the course of the fever, there are other things to be considered besides the appendicitis itself. The severity of the appendicular inflammation, its differential diagnosis from other lesions in the neighborhood, *i. e.*, localized transudated infection, and perforation of the ilium—the facilities present for operation (it must not be forgotten that many of these cases occur in private homes and at a distance from skilled operators), the general condition of the patient, the time during the course of the fever when the acute symptoms occur, all these and many others which will naturally present themselves to the attending physician must be considered. No one will deny that with symptoms of perforation the most logical course, and the one most suited to the occasion, is to operate within a few hours, that is, as soon as the primary shock is recovered from. Even so, operation may be advised against for some of the reasons cited above. Conservative treatment is to be used in mild cases unless the condition of the patient is such as to give a very favorable prognosis for the operation.

The following cases are illustrative of the various types:

CASE NO. 1. *Appendicitis Occurring at the Onset of Typhoid Fever.*

M. K. (M. E. H., 10047), female, age 15. Was admitted September 28, 1898, with the following history: One week before she commenced having a dull heavy feeling in the right iliac region, accompanied by some fever. This was followed on the next day by pain, which gradually grew worse, and three days later became very severe, and was accompanied by nausea and vomiting. These symptoms persisted, the pain lessening at times, and the vomiting occurring at varying intervals. On the day of admission she had a chill, and the pain became very severe. When I saw her the temperature was 102.4° F.; pulse, 104; respiration, 24. There was rigidity of the right rectus and tenderness, but not so much as one would expect with the degree of fever present. The pain, aside from the tenderness, was severe. *Operation* disclosed an appendix somewhat reddened, in the shape of a corkscrew, and curved twice upon itself. It was removed, and the cecal wound inverted with a silk purse-string suture. The abdominal wound was closed throughout. Gross examination of the appendix revealed a much thickened and acutely inflamed mucosa and an interstitial appendicitis.

Aftercourse. The temperature on the day following the operation was 101.8°; on the succeeding day varied from 99.6° to 103.2°. The patient was chinconized, and for two days the temperature was lower, but rose again on withdrawing the quinine. Rose spots were noted on this day. Typical typhoid temperature persisted from now on to October 20th, when the fever fell by lysis and was normal October 29th. From then until November 14th the temperature remained normal, and on that date the patient was discharged cured. At no time was there any wound disturbance.

CASE NO. 2. *Appendicitis Occurring Early in Typhoid Fever and Recurring Late in the Disease.*

L. K. (G. H., 9148), female, age 18, was admitted to the German Hospital, service of Dr. Wuest, June 5, 1906, with the following history: One week before she was taken with severe frontal headache, vomiting and diarrhœa. Her stomach would retain nothing, and she became so weak that she was compelled to go to bed. She had fever, and in the beginning had an occasional chill. When admitted the temperature was 103.4°F., pulse 120, respiration 28; heart and lungs negative; some abdominal distension; tongue coated brown. There was slight abdominal discomfort. The usual typhoid treatment was instituted—alcohol sponge when temperature rose to 103° F., saline enemata, milk diet. June 6th, Diazo's examination of the urine negative. June 7th, the abdominal discomfort increased, and I was requested to see the case in consultation. My examination disclosed a point of maximum tenderness over the appendix, with slight rigidity of the right rectus. There was moderate distension. On deep palpation a thickened appendix could be made out. Rectal examination negative. A blood examination showed a leucocytosis of 11,200; polymorphonuclear neutrophiles, 62%; lymphocytes, 19%; mononuclears, 17%; eosinophiles, 2%. Temperature, 103° F.; pulse, 98; respiration, 26. There was the dull headache and dull apathetic look of typhoid. My diagnosis was appendicitis complicating typhoid fever. I advised operation. This was refused. June 7th, Widal's reaction positive. Leucocytosis, 9,400. The temperature ran an irregular course, varying from 104° to 100° F., until July 14th, the thirty-ninth day of the patient's stay in the hospital. From that time until July 20th the temperature remained about 101° F. During these six days the stools, which had previously shown typhoid characteristics, became normal in color, vomiting began and became rather frequent. July 20th a mass was discovered in the right iliac fossa. I was again requested to see the patient. Examination disclosed a large abscess in the right iliac fossa. Blood examination showed a leucocytosis of 11,800; polymorphonuclear neutrophiles, 72%; lymphocytes, 17%; transitional, 10%; eosinophiles, 1%. I again advised operation, to which consent was given.

Operation, July 20th. A right rectus incision brought to view a large mass bounded by the lateral abdominal wall, the cecum, and below by loops of small intestine. The general peritoneal cavity was protected from infection by walling it off with laparotomy pads. The cecum was then gently separated from the lateral abdominal wall, allowing of the escape of a considerable quantity of very offensive pus. The abscess cavity and the wound were cleaned with equal parts of hydrogen peroxide and saturated solution of bicarbonate of soda, flushed with normal saline solution and then dried. The appendix was sought for and found adherent to the wall of the cecum and extending in an upward direction. It was dissected away, its base ligated with chromic catgut, the friable condition of the cecum not permitting of typic inversion. Upon removal the appendix was found perforated at the tip. A rubber drainage tube with additional gauze strips was inserted to the depth of the abscess cavity and the wound closed, except for the emergence of the drain.

Course following operation. The temperature, which on the morning of the operation was 102° F., fell on the fourth day thereafter to 100° F., and thereafter did not rise above that point. The temperature at no time resembled septic wound temperature, but rather the subsidence of typhoid infection. The wound discharged freely, requiring two dressings daily at first. On the eleventh day the rubber drainage tube was removed. Eight days after the operation the diet milk was added to, and one week thereafter a moderately full diet was allowed. This was attended by no bad results. The patient was discharged cured September 2d.

CASE No. 3. *Appendicitis Following Typhoid Fever.*

A. H. (G. H., 9307), male, age 11 years, was admitted to the German Hospital, service of Dr. Moser, June 28, 1906, with the following history: Seventeen days before the patient began to have headache and vertigo. He vomited twice that day. There was loss of appetite and constipation, the latter relieved by cathartics. He gradually grew weaker and apathetic. On admission the patient looked dull, apathetic, and somewhat emaciated. The tongue was dry, heavily coated, the edges red, and the papillæ prominent. Heart and lungs normal. There was slight abdominal distension. There were a few rose spots scattered over the abdomen. The spleen was slightly enlarged and palpable. Temperature, 103.6°; respiration, 32; pulse, 120, and of poor quality. Urine negative. Widal reaction positive.

The case ran a severe typhoid course until August 1st, when the temperature became normal and remained so for two days. From August 3d until the 18th a temperature of about 100° F. persisted. From then until the 23d the temperature was approximately normal. On August 22d there was a sudden severe pain in the abdomen at 9 A. M.

I was requested to see the case, and did so at 11 o'clock. The temperature was then 99° F. There was excessive tenderness over the appendix, rigidity of the right rectus and some distension. There was no collapse, but the patient was in very poor general condition. Blood examination showed a leucocytosis of 10,000. I advised immediate operation, but consent was not obtained until the following day. In the meantime the temperature rose to 101° F., and remained at that point until the operation.

Operation August 23d, 1 P. M. Three inch outer rectus incision. There was considerable free seropus in the peritoneal cavity, the intestines were only moderately congested, the appendix was slightly adherent, enlarged, inflamed and perforated near the tip. There was no local abscess. It was removed in the typic manner and the resulting wound in the cecum inverted. The pelvis was dried with stick sponges, the peritoneal cavity flushed with saline, and finally dried as thoroughly as possible. The wound was closed without drainage.

Course following operation. The patient reacted well from the operative shock. The temperature reached normal on the third day, and remained normal thereafter. There was slight skin infection. The deep sutures were removed on the fourteenth day, and the case discharged cured on the twenty-fourth day.

PSYCHIC EPILEPSY.*

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PSYCHIC epilepsy is a cortical inhibition or cortical emotional discharge, which, exclusively or at least mostly, manifests itself in peculiar psychic changes. Motor disturbances, as such, in the form of elementary inhibitions or dynamic explosions within the motor area, are lacking. Motor changes may, however, be present in the form of complicated actions. It resembles the pre- and post-epileptic manifestations, differing from them in the absence of the epileptic convulsions only, or the convulsions may be so brief as to escape notice. It is due to this that cases of psychic epilepsy, very often, remain unrecognized or are placed in realms, where they do not belong. According to Trousseau, epileptic insanity is less recognized than any other mental disturbance. Many a crime has been committed by psychic epileptics for which they were legally held responsible and paid the penalty of their crime in imprisonment and death. Lombroso claims that psychic epilepsy is responsible for a great many crimes. The manifestations of psychic epilepsy are manifold and varied, and a classification in the strict sense is hardly possible; different writers give different classifications. Falert follows the divisions of motor epilepsy and divides it into Petit Mal Intellectuel and Grand Mal Intellectuel. But there are so many transitional forms, that it is best to follow those writers who simply describe the different phases under which it manifests itself, thus giving a composite picture of the whole.

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* Read at the Annual Meeting of the Suffolk County Medical Society, October 25, 1906.

The attacks are irregularly recurrent; they generally begin with depression or fear. Sometimes there is a general mental hebetude, disconnected and vague false perceptions, such as hearing voices and seeing the environments in uncanny and varied expressions. There may be a slight disturbance of consciousness plus impulsive acts: These actions are distinguished by their instantaneousness, the idea becomes imperative and irresistive. Many dangerous crimes, such as murder and arson, may be committed while in this condition. Some show an automatic wandering impulse — poriomania—they wander aimlessly for days, weeks and months, during which they are depressed, and entertain suicidal, hypochondriacal and self-reference—delusions, or, which is more rare, they may merge into the dreamy state, a protracted conscious delirium, also observed in motor epilepsy. There is no marked disturbance of consciousness, so that to all appearance patients seem conscious. The objective perceptions, however, are markedly influenced. Illusions and hallucinations picture to the patient imaginary dangers. He may answer relevantly simple questions, but his general demeanor shows a certain torpidity and disorientation. He is anxious, captious, and sometimes strikingly euphorious, or, based on delusions, he commits many violent acts. In some cases consciousness is filled with dreamlike pictures, he mistakes persons and entertains hallucinations and delusions of a religious coloring. During this apparent consciousness he commits many senseless, purposeless, or even criminal acts, he wanders about, taking long journeys, and may show kleptomania, dipsomania, pyromania, or commits moral crimes, without showing the slightest insight into things. Such conditions may last weeks or months. Alzheimer reports a case lasting 18 months. Memory during the dreamy state may be fairly clear, but it soon disappears, either completely or leaving some gaps. He may be able to recognize persons and things, and even express perceptive judgment, yet, when his mind returns to its normal state, he remembers nothing, as memory often returns later than perceptive ability. These facts are especially important from a medical-legal point of view.

The following three cases were observed by the writer in the reception service of the Central Islip State Hospital.

CASE I.—P. L., male, 39 years old, admitted to hospital July 23, 1906, married, printer by trade, Canadian. He attempted to set fire to the St. Patrick's Cathedral, New York City, and as a result was committed to the hospital. Patient is middle-sized, 5 ft. 5½ in., weighing 146 pounds. His forehead is low but not receding, parietal eminences very prominent. Palate high and narrow, ears asymmetrical, left slightly larger than right, but of normal contour. Eyes are shiny, moist, deep set, right pupil smaller than left and somewhat irregular in outline, vision impaired in that eye. There is an irregular square shaped area of analgesia on the right side of the face. On admission he was neither dejected nor elated. He was very polite and his answers were relevant, showing a tendency toward high-sounding phrases and expressions and an inclination towards overestimation of the Ego. When questioned about his parentage, he states, that his father was a healthy man dying at the age of 76. His mother is still living; he describes her as " very eccentric; she never smiles and is always angry. You'd think she always wants to fight." A maternal cousin died in an insane asylum in Quebec. He describes his vita anteacta as follows: "From boyhood I always had a tendency towards melancholy. I never had toys, never played with other boys. I always had to remain home and be quiet.

When I went to school I was the laughing stock of the class, because I was a charity student. When I became older I masturbated, was nervous, shy and still imagine that people talk about me." Patient then goes into detail, showing how, in spite of all vicissitudes, he rose from a printer's apprentice to manager of one of the principal journals in Canada. He married his own cousin in 1890. She gave birth to eleven children but only one crippled boy of 12 is living, all the others died in infancy and most of them from convulsions. He gives a history of six attacks, which he fully describes; he says: "I had six attacks and it is always the same circumstances and the same symptoms. First there is a change of humor, I get morose, depressed, I lose interest in everything, I have no appetite and cannot sleep. I think that everybody wants to destroy me and soon I take to drink, and as soon as I touch liquor it is all over with me. I continue drinking, generally for two days. I then have feelings of fear, I imagine everybody wants to catch me and I run away. I would run away to the end of the world if money would carry me, because I am saved nowhere. Once I went as far as South Africa. I sort of lost consciousness for some time, during which I do not know what I do. After the unconsciousness I get all kinds of impulses, especially suicidal and to set fire to houses." During the first attack patient attempted suicide by shooting himself into the right temple. He shows evidences of it, being deaf and almost blind on the right side and there is some analgesia on that side of the face. He attempted arson four times and once he succeeded in burning a barn near St. John, Canada; he says: "I was in that barn, probably one or two days, I really cannot say positively how long I was in that state of unconsciousness, but I remember getting the idea to set fire to the place. I lit a match and threw it into the straw, then I ran about 200 feet, I then lay in the grass watching the fire until the last straw was burnt." He also set fire to a R. R. Station of the Grand Trunk Line, Canada, to a church and to the Cathedral in New York City. He speaks as follows about his third attack: "It came on just the same way as the first. I became depressed, then I got an irresistible desire to drink; after drinking for some time, I got the idea to run away because I was afraid of everything and everybody. I suddenly found myself in London. Until the present day I don't know what city I sailed from or on what ship. I believe that I sailed either from New York or Boston. I do not recollect paying for my steamship ticket, but I probably paid for it as I had a considerable sum with me. I was still in a dazed condition and the idea of suicide was constantly in my mind. Suddenly, while walking the streets of London, I saw a big poster, asking for recruits to go to South Africa. It was during the Boer war. I thought that it would be a good way to be killed, so I went in and enlisted into the South African Light Horse. Within a few days I was sent via Southampton to Capetown." He then gives a fair account of his doings in South Africa, saying: "During the first month in South Africa I was still in that dazed state. I always thought of suicide and death. I was very reckless and whenever they asked for volunteers I was always there, so that I was soon promoted for bravery or recklessness to quartermaster-sergeant. Just about that time I was again myself and I became very homesick, so that I asked for my discharge." Asked whether he hears voices during these attacks, he says: "I hear no real sounds, but there seems to be a discussion going on in my head; there are two sides; one says 'destroy yourself' and the other says 'no, go and set fire;' that continues up to a certain moment, when I decide to do it, and then I immediately hurry, so as to get through with it and get rest." Asked whether he sets fire with the idea of doing damage to life or property he says: "I don't know, but I believe it is for the pleasure of seeing it, for I always have to remain until the last straw is burnt."

On analyzing patient's psychical symptoms complex, we find that we have, at the time of examination, seemingly a normal individual who went through a number of attacks, which first began to be manifested in 1894, and which have the following characteristics:

First, there is a depression. Patient is dejected, morose and irritable, suffering from headaches, digestive disturbances and insomnia. He also evinces numerous persecutory, hypochondriacal and self-reference delusions. This continues for a few days, when patient invariably takes to drink and, to use his own words, "as soon as I touch liquor it is all over with me." The drinking continues for about two days and is followed by sensations of fear. He imagines that everybody wants to catch him, and hence results poriomania. He wanders, or rather runs, from place to place. "I would run away to the end of the world if money would carry me, because I am saved nowhere." Hand in hand with these symptoms there is some clouding of consciousness. He is entirely disoriented as to time, place and person;

he has absolutely no idea where he is, nor where he is going. This poriomania is followed by imperative ideas, chiefly suicidal and pyromaniacal. He shows evidences of a suicidal attempt and he attempted arson on a number of occasions. After the accomplishment of these deeds he feels calm and restful. Whether due to remorse or not, he feels impelled to confess the crime, a thing he invariably did. For a number of days he is somewhat fatigued, but his mind gradually returns to its normal state, his appetite and sleep gradually return and he soon regains his original weight. But there remains almost complete amnesia. He is at first unable to say when his attack began, nor to enumerate his wanderings and actions. Asked when his last attack began, he says: "I think it was in the beginning of June. I am sure I was home on the 24th of May as I remember witnessing a parade on that day. I know that I was in Boston and Fall River, because I found trolley tickets from these places in my pockets." He is, however, unable to state positively that he really was in these places, nor how long he was there. There is absolutely no history of any motor epileptic attacks of any form; yet he is a typical epileptic character, suffering from periodic attacks of obnubilation of consciousness, depression with its concomitant symptoms, delusions, dipsomania, phobias, poriomania, imperative ideas of suicide and pyromania, which are always followed by partial amnesia. A clear presentation of the crepuscular state in a psychic epileptic.

Case II.—E. J., male, 22 years old, admitted to the hospital August 22, 1906, single, native of the U. S., no occupation. He stabbed a man in New York City without the slightest provocation and as a result of which he was committed to this hospital. He is an undersized defective looking individual, his physiognomic expression is weak, palate high, ears asymmetrical, outstanding handle like. On admission he was markedly apathetic and indifferent, he did not seem to realize the gravity of his crime, spoke about it with the greatest equanimity and indifference, saying: "I got mad one morning and stabbed a man in the back." On being examined he states that quite often he gets spells of irritability during which he thinks of suicide and homicide. He says: "I thought of blowing my brains out and had I a revolver I surely would have done it. I stole a knife in Park Row the day before and the next morning I was walking around and got mad at myself, took out the knife and stabbed the first man that came along." His victim died in the New York Hospital. Patient's mother is a neurotic individual who during her interview with the writer showed amnesic aphasia. She, however, denies mental or nervous diseases in her family. She states that the patient was a bright boy up to his eighth year, when he had a fall. He was not injured in any way, but since that time he was peculiar. He had spells during which he was very headstrong and resistive and very often he would act as though in a dream. He did not seem to understand what was said to him. Often he ran away and remained away for days and even weeks. He did all kinds of peculiar things. On a few occasions he took the pictures off the walls and hid them. She speaks as follows of his last attack: "He was not at home for a few weeks and we could not find him anywhere. Three weeks ago he was suddenly seen by my daughter, wandering around the streets. He was wet and dirty. When she stopped him, he seemed to be dazed. She brought him home, but he paid no attention to anything. He kept his eyes closed most of the time and very often laughed without any cause. He soon fell asleep, the next morning he rose early asked for a dollar, which I gave him, and he left the house. He returned the following morning in a very exhausted condition. He was very irritable and dazed and when I spoke to him, he suddenly struck me, then he opened a prayer book and spat at it. He was put to bed and remained sleeping until the next morning, when he hurriedly dressed and ran away. The same afternoon we were notified by the police that he was arrested."

Here we have periodic abnubilation of consciousness, during which there is marked captiousness, irascibility, instantaneous acts, poriomania, kleptomania, suicidal and homicidal ideas and partial amnesia.

Case III.—J. P., male, 25 years old, admitted to the hospital May 25, 1906, single, native of the U. S., clerk. He was committed to the hospital by his parents who could no longer care for him at home. Anthropologically, besides the general inferior type, he shows no deformities. He was restless on admission, asked for his discharge, fully appreciating his surroundings. He is not burdened by heredity. Patient's mother states, that since his twelfth year he was very peculiar, he would run away from home and remain away for long periods, refusing to say where he was. She says: "About two or three times a year

I had to go through all the hospitals, morgues and police stations, trying to find him. He would suddenly disappear and stay away, at times only a few days, but often weeks and months. He never writes and we generally have to wait until he re-returns of his own accord. Only on one occasion did we hear from him, that was in 1900. He suddenly disappeared and a few months later he wrote a letter from Alaska. How he got there, I am unable to say, as he had very little money when he left. He gets spells during which he is very foolish, laughs and talks to himself and does all sorts of peculiar things. On one occasion he jumped off the Brooklyn Bridge and a few weeks ago he attempted to enter strange houses, for which he was arrested." On examination patient is somewhat evasive, making numerous false and contradictory statements. He says: "I read about a feller J. P., jumping off the Brooklyn Bridge in the newspaper, but that must be another J. P., I did not jump off the Bridge." When drawn into conversation, he admits jumping off the Bridge, adding: "I did not wish to commit suicide; I made some money on it." When asked why he ran away from home, he says: "I never ran away;" but when brought to bay, he admits running away, saying: "I get tired, I can make more money in other places." When questioned about his trip to Alaska, he says: "I don't remember when I ran away, but I was there and made some money." He is unable to give a chronological account of his vita anteacta. When he attempts to do it there remain wide gaps.

The psychical symptoms complex of this patient show the periodic clouding of consciousness, poriomania, purposeless, instantaneous actions, kleptomania, and suicidal ideas.

Observation since admission:

Case I.—Remained in hospital about two months. All his actions and demeanor showed the well developed epileptic character. He was deported to Canada, his native land.

Case II.—Showed two periods of depression plus some clouding of consciousness and purposeless actions.

Case III.—Was quiet and orderly up to September 22, 1906; since then he became restless, splenitic, querulous, refusing to occupy himself, constantly asking to be discharged. October 22d, he suddenly without any provocation struck another patient with a pail; following this, he was very restless and pugnacious, requiring five attendants to restrain him. When seen a few minutes later by the writer, he denied everything, saying: "You would not think that I am going to hit this little boy. I never touched him, nobody can say that I did." Two days later, he suddenly attacked another patient. This condition lasted until October 30, 1906, after which he gradually became calmer and at the present time he is tractable and well behaved. He is unable to explain why he attacked patient number one, but he thinks that patient number two called him "names."

All these cases show the well defined epileptic character,—sudden, periodic recurrences of psychic and emotional transitions, obnubilation of consciousness, instantaneous acts and more or less amnesia,—the typical picture of Psychic Epilepsy.

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KNOWLEDGE OF THE EYE, WHICH IS OF USE TO THE GENERAL PRACTITIONER.

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THIS paper is intended for the general practitioner to awaken his interest, and instruct him, that he may the more readily recognize those diseases of the lids, and of the globe and orbit, that may present themselves to him. Also those acute diseases that are apt to be seen early by the general practitioner, at a period when the most good can be accomplished.

Again certain obscure diseases, insidious in their approach, are here unmasked so as to be readily recognized. For instance, optic atrophy; you may for weeks and months be attending a patient who is progressing along a neuritis to a sure and certain atrophy, and yet there are no external signs, even the pupils are not affected; there is no pain unless the orbit be involved. Central vision may not be affected for months. When it does fail, the pupils become fixed. Color sense may be intact, or it may be wholly wanting, or failure may occur in the usual order of green, red and blue. How then can the general practitioner make a diagnosis? He cannot; the ophthalmoscope alone can clear up the case. But he must be alert after exhausting diseases, and hemorrhages, periostitis, disease of the frontal sinus, caries of the teeth, or after a severe blow on the head. He must watch for contraction of the field of vision, incapacity for prolonged use of the eye; these things may lead him to detect beginning neuritis. It is always to be remembered that such a neuritis, whether a papalitis, or a retro-bulbar neuritis, may be caused by toxic poisons, especially tobacco or alcohol.

Take in contrast to these cases an acute case. The physician is called in the middle of the night and finds a patient suffering from gastric symptoms, thus: there is a chill and profuse vomiting, the patient's face expresses great anxiety, there is marked prostration, one eye is swollen and injected, with great pain over the corresponding side of the face and forehead and perhaps over the whole side of the head. The patient states that the attack came on suddenly, without any premonition. A diagnosis of biliousness is made, or if the lids and surrounding skin are very red and glistening, erysipelas is said to be present, or it is pronounced to be a severe neuralgic attack. Calomel and an anodyne with some local treatment are given, and the doctor leaves his patient at a moment when the most energetic treatment is required to save the eye from partial or total loss of vision. Now what would have saved the physician from this deplorable mistake? If he had pressed gently with the tips of his fingers on the lid over the sclera, and then repeated the same on the other eye, he would have found the affected eye much harder than its fellow. This increased tension would have been sufficient evidence of acute glaucoma and he would have called for the immediate aid of a specialist, thus saving the patient from loss of vision. Of course a further inspection would have revealed a dilated and totally inactive pupil, with a hazy anesthetic cornea, and a shallow anterior chamber. Sometimes there are slight warnings of these attacks, there may be transient attacks of dimness of vision.

But, though the physician should never make the mistake of not recognizing a case of acute primary glaucoma, the detection of the chronic form is very difficult, yet even here he may render great service to his patient. The symptoms are so mild that besides the slow loss of vision, there is hardly anything to call attention to the condition; and even the loss of vision may be mistaken for presbyopia, as glaucoma simplex is apt to occur at or about that time of life from forty to fifty. It will be enough to remember that if at that period of life there be progressive loss of vision, not restored by glasses, the case is a suspicious one and should be sent to the specialist, especially if the patient has small eyes, or if there is a history of rheumatism in the family or a family history of glaucoma. Tension here is so intermittent that its absence has little significance. Again, in tabes, in about 30% of these cases, there occurs more or less paralysis of the orbital muscles, and a progressive loss of vision, especially a narrowing of the field of vision, which precedes the lightning pains, loss of knee jerk, and other spinal symptoms by a period of from two to twenty years. At first one eye only may be affected. Color blindness is constantly associated with it, green being the color first lost. If the paralysis be complete the eye will be incapable of motion and while distant vision will be normal, near vision will be very much impaired.

The usual paralysis, however, preceding tabes is that of the sixth nerve, producing diplopia. Not at all infrequently the levator palpebrarum is involved, resulting in ptosis.

These paralyses are also precursors of diabetes, but here it is most common to have a partial paralysis of the accommodation, seldom a complete loss, difficulty or inability to read ordinary print, whilst distant vision is unimpaired. This is one of the earliest evidences of diabetes. Less frequently we have partial paralysis of the sixth or fourth nerve giving diplopia, and we may have complete paralysis of all the muscles of one or even of both eyes, though such a condition is rare. These paralyses may occur when the disease is mild or when it is severe. Rapidly failing vision in both eyes in the young or middle aged may point to diabetic cataract, producing a myopia. While the pupil, as a rule, is not affected in diabetes, tabes and general paralysis are very apt to be preceded by myosis, or by inequality of the pupils. When myosis is present and cannot be increased by throwing light upon the pupil, but is increased by efforts at convergence or accommodation, we have what is known as the Argyle-Robertson pupil. Inequality of the pupils with great headache is frequently the only indication of cerebral syphilis. Inequality in size of the pupils is always a matter of serious import, as it denotes inflammation in the course of the consensual pupil reflex, which in a normal condition is always equal to the direct pupil reflex. The method of testing both the consensual reflex and direct reflex is important. The patient should be placed facing a window, closing both eyes till the pupils have had time to dilate, he is told to open them suddenly, and look at some distant object. The oscillations (Hippus) of both pupils are observed till they become fixed. Then he is made to look at the head of a pencil brought closer and closer till he can no longer get single vision. The contractions of both pupils are to be noted; this is the reflex of convergence. Shading one eye, he is told to look at a distant object, and this time only one eye is used for looking at a near object, the other eye being covered; this gives the reflex due to accommodation. Again closing both eyes, a card is held in front of one eye, say the left, so as to exclude the more direct rays, he is told to open the eyes and look at a distant object, and light is thus thrown only on the exposed pupil; the contraction of both pupils should be equal, though one is excluded from the light. This is consensual reflex. The same process should be repeated on the other eye. If the pupils should be found of different sizes, the least movable one is usually the pathological one. This holds good, except in myopia of high degree, and any departure from the normal is sufficient evidence to justify referring the patient to the expert. Consensual reflex should always equal direct reflex. It must be remembered that psychical influence, anger and fear will cause the pupils to dilate, and that in many nervous delicate people the pupils are habitually dilated.

There is no absolute standard for the physiological size of the pupil in health. It depends chiefly upon the intensity of the light to which the eye is exposed. Persons with blue irides have generally smaller pupils than those with black irides, as more light reaches the retina through the iris. In elderly people the pupils are apt to be small and to become smaller as they grow older; this is due to loss of energy of the sympathetic, and to a sclerosis of the walls of vessels of the iris and rigidity of its stroma. During sleep, and during the administration of an anesthetic, the pupils are contracted, and medium dilatation in healthy people is due to psychical and sensitive stimuli acting through the sympathetic. A pinching of the skin on the side of the face will cause rapid dilatation of the pupils in some people.

The recognition of inter-ocular disease is beyond any one except the expert. A history of gradual failure of the eyesight should always arrest attention. Frequently a patient comes to the office of the specialist to be fitted with glasses and tells the usual story of wandering around from one optician to another, having his glasses changed without benefit. An examination reveals destruction of the retina or choroid or nerve. Nothing can usually be done except to prevent further destruction. In contradistinction to this slow loss of vision, we have the sudden and complete loss of vision that occurs in acute parenchymatous nephritis, uremic amaurosis, distinguished by a rapid and complete recovery from ambliopia, which is a permanent, partial or total loss of vision, due to some toxic disease, drug or gas. A list of such diseases and drugs is almost endless; chief among the diseases are nephritis, diabetes, syphilis; among the poisons are alcohol, tobacco, lead, carbon-bisulphide, quinia, ergot, chloral, mercury and iodoform.

Hysterical ambliopia must always be borne in mind. There is another instance of the sudden loss of vision from an instant to half an hour when vision returns unimpaired. Here the fundus may be normal, the patient able to read fine print. These cases are due to increase of the cerebraspinal fluid in the third ventricle pressing on the optic commisure, or to disturbance of the circulation affecting the visual centers. It is well to know that blindness may be caused by continued pressure on the eyeball. Thus blindness has been caused in children by blepharospasm, and in the adult by lying unconscious with the eyeballs pressed upon. Nipping of the nerve in fracture of the sphenoid has caused immediate blindness, the fracture, of course, being caused by a blow. It is well in these cases to note if there has been bleeding from the nose or subconjunctival ecchymosis, as a fissure will sometimes run across from one orbit to the other. Concussion of the spinal cord has caused loss of sight.

Three very interesting ocular conditions are alexia, dyslexia and paralexia. In the first the patient sees perfectly well, but cannot read the words. This is caused by lesions in the cortex of the occipital lobe. In dyslexia there is no indistinctness of vision, but the power of attention is gone. The patient will read a few words, then put down the book, exhausted, and cannot be induced to proceed. In paralexia the patient substitutes other words than those he intends to use. Hemeralopia is where vision is unduly reduced by darkness. This is to be distinguished from another night blindness due to retinitis pigmentosa, a disease that leads to total blindness. Here there is a great limitation of the field in daylight. In contrast to these is metalopia, where the patient sees better in a dim light than in a strong one. If your attention is called to the matter, and you are sufficiently observant, you will most surely meet with cases where loss of vision occurs in half of each visual field. Though sufficiently alarming, these cases are mostly functional-hysterical.

Phlegmonous cellulitis of the orbit must not be confounded with thrombus of the orbital veins and cavernous sinus. It is only when cerebral symptoms are manifest that we can distinguish them. In both we have dull pain in and around the orbit, slight swelling of the lids, chemosis of the ocular conjuctiva, slight divergence or protrusion of the eye, with diplopia, general headache, limitation of the motility of the eyeball, and defective vision. These severe symptoms are always present in cellulitis following erysipelas. In thrombus of the orbital veins we have an edema of the mastoid region never found in retro-bulbar cellulitis. Inflammations of Tenon's capsule give swelling and edema of the upper lid, mainly confined to the upper or retrotarsal portion, pain on the slightest movement of the globe, exophthalmos.

HISTORY OF THE SUFFOLK COUNTY MEDICAL SOCIETY.

BY FRANK OVERTON, M.D.,

PATCHOGUE, L. I.

BEFORE there was such a thing as the Suffolk County Medical Society there were physicians to organize, and before there were physicians in the county there were sick folks who needed care and attention. For the first fifty years after the founding of Southold, in 1640, there were no physicians in the county. There seems to be no record of the treatment of the sick during that period. Doubtless the settlers practiced the methods followed on board merchant ships, where the advice of the head man is observed in unusual cases of sickness, as well as in other emergencies. But besides these advisers there were probably two sources of advice that were much sought. In the first place, in every community there were women of good judgment whose very presence in the sickroom was a benediction. If their unconscious sins of omission were great they at least refrained from deadly bleedings and other sins of commission. Page 180 of Griffin's Journal, that storehouse of Suffolk County gossip, speaks of four of these women:

> "There have been three or four justly respected and meritorious women who devoted many years of their lives in attending the sick of their sex in this town since 1740. Of these, the first was Elizabeth King. As far back as 1770, we knew her; then an old woman. She was mother to Benjamin King's wife. This woman was assuredly valuable to her generation, and successful in her attendance. An encouraging, careful, cheering nurse, and at all times ready to administer proper restoratives to the many who knew the value of her counsels and visits. About thirty odd years of strict attention to the duties allotted her by Providence, this venerable mother closed a useful life to the generation who knew how to appreciate her worth. At her death, not far from 1780, she was aged eighty-one years. She attended at the birth of one thousand or more children."

The materia medica of these women, doubtless, consisted largely of catnip, horehound, motherwort and boneset. Many of these herbs were naturalized from Europe. Clumps of them growing in every old backyard are to-day mute witnesses of the universality of their use. They still mark the sites of homesteads where all other evidences of their existence have passed away.

A second source of medical advice was the Indian medicine men or women. By their reticence and assumption of dignity, the Indians acquired an undeserved reputation for a wisdom which was enhanced by their supposed knowledge of the properties of the native herbs. In the early 1800's an old Indian squaw had a great reputation in Brookhaven Township, and her advice was sought in the best families, in spite of the fact that she prescribed such remedies as dog excrement. She was probably the last of a line of Indian doctors whose fame had long been established when Hendrik Hudson sailed past Coney Island. An interesting remnant of the old belief in these doctors may possibly lurk in the uniform belief that the colored people have in the magic of roots. If you wish to scare a colored man hang a curiously twisted root on his door latch, or put a small bit under his pillow. To-day in Port Jefferson there is an old darky who makes a good living by neutralizing the evils of his brethren who have been "Rooted."

In a sermon preached on January

1, 1806, by Lyman Beecher, then the Pastor of the Easthampton Church, there is a hint regarding the health of the town. In speaking of the lowering of the death rate since 1775 he says:

> "The cause of this surprising change is ascribed by many to the death of the prim, which constituted a principal part of the fencing of the town; all of which died suddenly and unaccountably about the time that this favorable change took place.
>
> But whether it was the noxious qualities of this plant, or the noxious qualities of the air, on which the vegetation of this plant depended, and which being removed produced death to the vegetable and health to animal life, I shall not attempt to decide. The disorders most prevalent in this sickly period were acute fevers, sometimes terminating life in 36 hours, and often in three and four days.
>
> In the year 1726 a remarkable sickness, called the sweating sickness, made its appearance in this place, desolated several families, and threatened a very great mortality. It did not, however, become general. The patients were taken with most profuse sweatings, in which state they continued until death. The same disease prevailed in England about the same time and carried off one half of the inhabitants of many villages."

The first practicing physician in Suffolk County of whom we have a record was the Rev. Joshua Hobart, second pastor of the Southold Presbyterian Church. And he was born in Hingham, England, in July, 1629, and graduated from Harvard in 1650. On the death of the first pastor of Southold, Mr. Young, in 1672, a committee of the head men of the town spent two years in choosing a new pastor, and finally, with rare wisdom, chose one who could heal physical ailments as well as cheer the soul. For over forty years he ministered to the afflicted in body and spirit, and died universally respected February 28, 1717, aged 88. The town authorities resolved to build him a monument, in which stone lime should be used rather than common shell lime. The stone may still be seen in the old Southold churchyard lying, as it was built, flat on a raised foundation. Its lengthy inscription was cast in lead, and set in a depression of the stone, but was stolen during the Revolution either by the British or by the Tories. The epitaph is given in full in Dr. Whitaker's History of Southold, and among other facts states, "He was a faithful minister, a skilful physician, a general scholar, a courageous patriot, and to crown all, an eminent Christian." Then in the middle of a lengthy eulogy in verse appears these lines:

> "No more his healing hand shall
> health restore;
> "Elude the grave and baffle death
> no more."

Dr. Joshua Hobart was the first of a number of Gospel ministers who practiced medicine in Suffolk County. This seems to have been in accordance with the general custom throughout the country of combining the position of minister of the Gospel with that of physician. Many students in England specifically prepared themselves at Oxford and Cambridge for service in the colonies by studying medicine as well as theology. They were medical missionaries to self-supporting churches.

Another physician-pastor who came almost a century after Dr. Hobart was Dr. Thomas Paine, who graduated from Yale in 1748, and served the Cutchogue parish from 1750 to 1766. His gravestone may still be read in the old cemetery at Cutchogue.

> "In memory of Ye Rev. Mr. Thomas Paine, late Pastor in this place, who lived desired by many (a distinguished Preacher of Righteousness and a successful healer of the sick) and died lamented by Most on the 15th of Oct., 1766, in ye 43d year of his age.
>
> Ah, cruel death, why didst thou
> take so quick
> That Guide of souls and Healer of
> ye sick?
> Not Death but God the Author of
> ye Breach
> Thereby to give such useful men
> doth teach."

A classmate of Dr. Paine was Dr. John Barber, who served in the next parish, that of Mattituck and Aquebogue, from 1749 until late in the century. He graduated in medicine at Dartmouth in 1782, but, undoubtedly, he had long practiced before that date.

In the old cemetery at Southaven, formerly called Fire Place, there is the grave of the Rev. David Rose, who served his parish as pastor and physician from 1765 until his death in 1799.

Rev. William Reeve, of Southampton, is another pastor-physician of that time, and doubtless, the record of many other physician-ministers will come to light.

The records regarding the early professional physicians of Suffolk County are exceedingly meager. Dr. Schroeder has an article on the Early History of Medicine on Long Island, which appeared in the *Brooklyn Medical Journal* for October, 1905. In it he gives the names of about twenty physicians who practiced in Suffolk County previous to 1822. These are:

Dr. John Mackie, the first physician to practice in Southampton, died in 1758.

Dr. William Smith, native of Moriches, but practice in Southampton. Died 1775, and his place was taken by his son, Dr. John Smith.

Dr. Henry White and Dr. Silas Halsey, both Southampton names, also succeeded Dr. William Smith.

Samuel H. Rose and Dr. Samuel Latham also seem to have been at Southampton at that time.

From the number who practiced at Southampton at the end of the 1700's it would seem that many of the physicians must have been amateurs.

At Huntington, about the close of the eighteenth century, there were also a number of physicians:

Dr. Benjamin Y. Prime.
Gilbert Potter.
Gilbert Smith.
James Sandford.
Daniel Wiggins.
Zophar Platt.
Oliver Brown, d. 1815.

At Easthampton there were:
Dr. Ebenezer Sage, 1755-1834.
Nathaniel Gordner, 1759-1804.
Aaron T. Gardner.

At Smithtown were:
Jonathan Hovens.
Zephaniah Platt, d. 1818.

At Brookhaven was:
Dr. George Penderson.

At Islip was:
Dr. Richard Udall.

At Southold was:
Joshua Clark.

(*To be continued.*)

MEDICAL CHEST CARRIED BY DR. MILLER, NOW IN THE ROOMS OF THE SUFFOLK CO. HISTORICAL SOCIETY.

LONG ISLAND MEDICAL JOURNAL

A Forum for the Discussion of all Topics involving the Medical Profession and especially that of Long Island.

PUBLISHED MONTHLY BY
THE ASSOCIATED PHYSICIANS OF LONG ISLAND

EDITED BY
PAUL MONROE PILCHER, A.M., M.D.

EDITORIAL OFFICE:
386 GRAND AVENUE, BROOKLYN, N.Y

Further information on advertising page 5

THE LONG ISLAND MEDICAL JOURNAL.

On April 14, 1898, the Associated Physicians of Long Island were incorporated, and organized at the Union League Club in Brooklyn. Dr. Lewis N. Lanehart, of Hempstead, was elected Chairman, and Dr. Robert J. Morrison, of Brooklyn, Secretary.

The meetings of the Association have been held three times a year, the annual meeting taking place in Brooklyn. These meetings have brought into close relationship the members of the various County Societies of Long Island, in which respect the original expectations of the founders of the Association have been realized to a most gratifying degree.

Up to the present time the Association has published seven volumes of its "Transactions," and the membership of the Association has reached nearly 500. The amount of material of scientific value presented at its meetings has become such that further means to bring its memoirs and discussions more promptly and fully before the profession at large has been felt to be necessary. To accomplish this, various methods have been proposed. All have realized that the Transactions appearing annually lost much of their importance before they reached their final destination.

As a result of a consultation between the officers and the Board of Directors of the Association, it was decided to recommend to the Association the publication of a monthly journal which should contain the Transactions of the Association and whatever else might be of special interest to the physicians of Long Island and its environs. This recommendation also found expression in the address of the President of the Association, Dr. Elias H. Bartley, at the meeting held June 23, 1906. The address in part is as follows:

Dr. Bartley's Address.

"The practice of the past few years, of publishing an Annual Proceedings is antiquated and unsatisfactory. The papers read before so representative a body as this should not be locked up in an annual and confined to the comparatively small circle of its own membership. Good papers can not be expected to be offered unless they are given proper circulation.

Not only so, but the general proceedings of such a body should be given the widest publicity, that the world may know that such an important medical body exists.

Last fall our Secretary started an agitation on this subject, but he only suggested the discontinuance of our transactions and publishing our proceedings and papers in the *Brooklyn Medical Journal.* Before this suggestion had borne fruit we were met with the dilemma that this journal, almost the only one open to us, is to be discontinued.

We are therefore in the position of being obliged to continue the dwarfing method of publishing an annual proceedings, or of issuing a periodical. To my mind the latter course is by far the best for the future of the Association, provided it can be done with our present financial resources. With this thought in mind, and after consultation with the Board of Directors and a few of the members, I have ascertained the terms on which the Association can publish a journal of its own. I have secured a proposition from a publisher who is prepared to finance such a journal.

The exchanges and books for review will be the property of the Association, and it is proposed to deposit them in the custody of the Library of the Kings County Society. The scientific material would not necessarily be confined to the papers read before this Association, but would be drawn from the various special and county societies of Long Island. It would, in fact, be the medium of publication of their scientific papers.

My plan contemplates a publication committee composed of one member from each county, the chairman of which to be editor, and one other member to be censor of the advertising matter. This committee should be made more permanent than at present constituted, in order to continue a definite line of policy from year to year.

This would require an amendment to our Constitution providing for the election of one member each year, instead of making the whole committee appointees of the President each year. It might be wise to make the President *ex-officio* a member of the committee. I would propose LONG ISLAND MEDICAL JOURNAL as the name of the publication, and that we begin its publication, either the coming fall or winter, as a monthly. That the subscription price be placed at two dollars to non-members, and that it be sent to each member of the Association. If this proposal should meet with your approval, it will keep our members in close touch with the Association, its objects and aims, and will greatly promote these objects and increase the prestige and usefulness of the Associated Physicians of Long Island, and thus be a distinct advantage to the material as well as the medical interests of the Island."

In accordance with this recommendation of President Bartley, a committee consisting of Drs. MacEvitt, De Lano and Zabriski was appointed to consider the subject. The report submitted by this committee is as follows:

Your Committee approves and recommends the adoption of the following suggestions, contained in the presidential address; the publication of a monthly medical journal to be known as the "LONG ISLAND MEDICAL JOURNAL," and that the publication of the TRANSACTIONS of the ASSOCIATED PHYSICIANS of LONG ISLAND be suspended, and that an effort be made to issue the first number of the JOURNAL by January 1, 1907.

That there shall be a Publication Committee composed of one member from each of the three County Medical Societies of Long Island.

That said Publication Committee be appointed by the Board of Directors, and their continuance in office be left to the discretion of the said Board of Directors.

That the President and Treasurer of this Association be *ex-officio* members of said Publication Committee.

That the President and Board of Directors, with the consent of the Association, be empowered to continue and complete negotiations with Mr. G. L. Harrington in the matter of the publication of the proposed Medical Journal.

The report of the Committee, with the recommendations therein contained, was adopted.

Within a few weeks, the Board of Directors of the Association held a meeting and elected Dr. Paul Pilcher as editor of the Journal.

It is the hope of the editor of this new journal to make it a live issue on Long Island, and to bring before its readers all the medical news of Long Island, which is of sufficient importance to justify publication. He will try to demonstrate through its columns that we are not in the shadow of a great city, but are in reality a united and powerful community from which emanate a power and force which are compelling, and contains within it a strength which is sufficient. The Associated Physicians of Long Island will be united by a stronger bond than ever, and it will be accorded a high position among the scientific societies of Long Island.

THE JOHNSON-LOPER MALPRACTICE SUIT.

The first malpractice suits in the annals of the legal history of Suffolk County were brought on for trial on October 15, 1906, before Mr. Justice Garretson and a jury, at Riverhead, Suffolk County.

Two actions were brought—one by Dorothy Johnson, an infant, 10 years of age, and the other by Charles T. Johnson, the father, aggregating the sum of $25,000, each charging carelessness and negligence, against Dr. Arthur C. Loper, of Greenport. One action was for loss of services by the father, and the other by the daughter for the injuries received by her.

The alleged malpractice was in the treatment of a complicated fracture near the left elbow, consisting in a fracture of the external condyle of the humerus, a comminuted fracture of the neck of the radius beneath the orbicular ligament, combined with an oblique fracture of the ulna two and one-half inches below the joint.

The treatment accorded by the attending physician was a reduction of the fracture under chloroform, followed by an application of a right-angle tin splint, applied to the front of the elbow, and two lateral wooden splints, external and internal, extending from the elbow to the fingers, all well secured by bandages, all supported by a sling. During the week following the injury, repeated inspections of the dressings were made by the surgeon.

At the end of ten days, all splints were removed and such readjustment made from time to time as the swelling at the seat of injury required; it was then discovered by the attending surgeon that there was some displacement and over-riding of the fractured ends of the ulna. This was overcome by manipulation and the same dressings were reapplied.

A few days afterward, the mother informed the doctor that she was going to her home in Brooklyn, and the doctor again removed the splints and examined the arm, and found some displacement; he then again adjusted the fractured fragments and applied the same splints, and at the same time directed the mother to take the child to her family physician as soon as she arrived in Brooklyn.

This physician, when the child was brought to him, found the fragments of the ulna already united, overlapping and with some angular deformity, and the function of pronation and supination lost. Under advice of a consultant, the Brooklyn physician later laid bare the ulna at the seat of fracture by incision, sawed apart the adhered fragments, and sutured them together after correcting the angular deformity. No interference with the radial conditions was attempted, but some fragments of bone were subsequently taken out from that region. The ultimate result was a good union in the ulna with nearly normal ability to flex and extend the forearm, but with no improvement to the rotation function. Both the family physician and his consultant appeared in court in behalf of the plaintiff in the case, and the former, during most of the time, sat beside and advised the attorney for the plaintiff.

The surgeons who appeared on behalf of the defendant for the purpose of substantiating as correct the treatment accorded the child, were Dr. Lewis S. Pilcher, Dr. H. Beeckman Delatour, Dr. Hermann P. Bender, all of Brooklyn; Dr. John H. Benjamin, of Riverhead, and Dr. W. S. Bennet, of Patchogue.

Dr. Pilcher was called upon by the attorney for the defendant for the purpose of illustrating and demonstrating the anatomy of the elbow joint, the effect of the muscular contraction upon the bones about the joint, and the description of the method of nature's repair, as well as to explain the dangers and ordinary results of injuries of this class.

The trial occupied a portion of three days and resulted in a complete victory for the attending physician, Dr. Loper, and entire justification of his course of treatment in connection with it.

The case was one of special interest, it being the first ever tried in the County, and was listened to by a large number of the medical profession of the County, and drew a large audience who stood during the entire trial evidencing extreme interest in the case.

The case was conducted by James Taylor Lewis, the Counsel of the Medical Society of the State of New York, assisted by Timothy M. Griffin, of Riverhead.

The Hypothetical Question.

After qualifying the various experts, the hypothetical question presented by Mr. Lewis to the various surgeons was as follows: "Assuming that on the 30th day of July, 1903, a child seven years of age injured her left elbow; that she was attended by a surgeon within half an hour; that he found the elbow and vicinity badly swollen; that upon examination he discovered the neck of the radius broken and its fragments displaced, the ulna fractured two and one-half inches from the elbow, and the external condyle fractured: that he caused to be administered with the assistance of an assisting surgeon a general anesthetic and while the patient was unconscious and with the assistance of the assisting surgeon he placed the fractured ends of the bones in apposition, the arm being held by the assisting surgeon; that he then applied a right-angle tin splint in the front of the elbow and wooden splints posteriorly and anteriorly upon the forearm, all padded with cotton; that he then applied bandages about the splints which held them in position; that he then informed the mother of the child that there were irreparable injuries which might never be removed; that he instructed her to allow the child to go about but not to allow it out of her sight and care in order that the child might not be injured; that he saw the patient and inspected the arm three times on the first day and gave medicine to relieve the pain; that he called on the patient or the patient called at his office every two or three days and he then and there inspected the arm and splints; that on the tenth day he removed all splints and bandages and examined the arm and found some displacement of the fractured ends of the bones; that he then with the assistance of the mother exerted traction on the forearm for the purpose of restoring apposition, and again with her assistance reapplied the same splints and bandages; that three days thereafter, being advised that the mother was about to take her child away, he again inspected the arm, removed and reapplied the splints after again readjusting the fractured ends of the bones with the mother's assistance; that he then and there directed the mother to take the child to her family physician immediately upon her arrival home and stated as a reason of the necessity therefor that the bones had not sufficiently repaired to remain without the attention and attendance of a physician. Assuming these facts to be true, was the advice given proper advice, was the surgery employed good surgery on the part of the attending physician, and were such acts as were performed by the attending physician, those of a prudent and careful surgeon, and for the purpose of repair of the injuries originally received by the accident and a cure of the patient?

THE WALTER REED MEMORIAL.

The Association of Ex-Internes of the Kings County Hospital Present a Bronze Tablet to the Kings County Hospital in Honor of Dr. Reed.

The evening of November 21, 1906, the Ex-Internes Association of Kings County Hospital, Clarkson Street, Flatbush, held their fourteenth annual dinner, in the course of which the Association presented to the Hospital a bronze tablet in memorial of Dr. Walter Reed, who died in Washington, D. C., four years ago. On the tablet is inscribed:

ERECTED
BY THE ASSOCIATION OF EX-INTERNES
OF
THE KINGS COUNTY HOSPITAL
TO THE MEMORY OF
WALTER REED, M.D.,
INTERNE IN THIS HOSPITAL, 1871,
MAJOR AND SURGEON U. S. ARMY,
CHAIRMAN U. S. YELLOW FEVER COMMISSION.
1900-1901.

He robbed the pestilence of its
terrors and caused the cities
of the Southland to sit in
Peace within their gates.

The dinner was a brilliant affair, and the occasion was made the more memorable by this fitting tribute to the memory of one who was an ex-interne of the Hospital.

One of the most interesting events of the dinner was an address by Dr. Howard A. Kelly, of Baltimore, which was in part as follows:

"Let our enthusiasm not evaporate in words and leave us spiritually impoverished after this unusual gathering. Let us resolve, now and here, on the scene of our departed colleague's labors, ourselves to profit by the lessons of his life. We have the same or greater opportunities than he to open up rich mines of service and for an opportunity we need not look beyond the walls of this foundation.

"His life teaches a lesson of humanity, a spirit of uniform kindliness, to the least as well as to the highest. Physicians, surgeons, residents, as well as nurses, carry this spirit into all your dealings to the poor under your care. Be uniformly kind and considerate from the heart and you will have achieved one of the greatest factors of success.

"Let the trustees here work well into that spiritual relationship of sweet harmony, as well as to the efficiency of the staffs appointed by them. Give your men good assistance, the aids they want; and let them train them to take their places.

"And you older men, step aside, from time to time, and let the youngster have a chance. Look not with jealousy but with affectionate interest at the growing reputation of your helpers. Give the residents a chance to do some original work. Let them operate freely where you feel you can trust them. Do less work, and more real study. Continue to discipline yourselves in the battle of life. Remember that when you relax you inevitably fall back.

"Is there any who has several hospital appointments which keep him busy operating all the time? It is an iniquity? Quit it, and let the younger men, who are being stunted and thwarted by your greed, have a chance.

"Take one, and at the outside, two, and be generous even in these to your assistants and residents. Remember you hold a position of trust—not to exploit yourself but to train men to follow after you, to hold you in loving memory.

"Young men, you have many discouragements; but you would never be worth a fig if you had no battles to fight. Ever keep the kindly spirit in all your relations and stick to your posts hopefully. Start here a medical society. Get a fine big library here, if you have not one. It is an essential. (Applause.)

"If you are compelled to do drudgery and waste precious time in the mere manual exercise of writing up histories and operations, go to your trustees and ask for one or more stenographers. (Laughter.) Start a good card index of your patients, diseases, operations and complications; and then go to work and begin to publish. Don't wait to make a startling discovery. Put out the little papers first. Oh, I wish I had the time for a few little reminiscences.

"You work best for yourselves when, in utter unselfishness, you completely forget self and work because it is right and honorable that you should do your best in the sight of God and man. I think wherever my name may chance to be known it is also known that I stand for a definite, living, Christian faith.

"I beseech you, in closing, to make real that faith which we so widely advertise on our coinage: 'In God we Trust.' I beseech you, at least, to give that measure of reality to your Christian faith which the heathen, the Mussulman, the Chinaman and the Indian invariably accord to theirs. If you do this, then I have great hopes that this occasion will mark a new era—a red letter day—for your hospital, for yourselves and for your community."—*Brooklyn Eagle.*

The remarks of Dr. Kelly are both interesting and instructive, but, unfortunately, the circumstances which surround his own work in Baltimore cannot be developed here. He advises the older men to step aside from time to time and "let the youngsters have a chance"; this, in the organization of our hospitals on Long Island is, unfortunately, not possible. The men who act as our internes are unable to devote a long enough time to hospital work to become sufficiently proficient to be allowed to operate freely, without disadvantage to the patient. Indeed, in some hospitals it is the rule that internes shall not be allowed to do major operations; this, however, is an injustice to some internes who are fully capable of doing good work. If, in our hospitals, we were allowed to have resident surgeons who should serve in that position for a number of years, then his plan would be more practical.

He asks, "Is there any who has several hospital appointments which keep him busy operating all the time?" Now it is true that some surgeons have several hospital appointments, but it is also true that these hospital appointments are not of a continuous service, and unless the surgeon has several hospital appointments he is doomed to periods of inactivity which make him incapable of doing the best work.

If a man should take but one hospital appointment in Brooklyn, the present condition of hospital affairs is such that he might at any moment lose his appointment, through no fault of his own, and then he would be without a hospital service. This is due, in part, to the relation which exists between the administration and medical departments of our hospitals, in which the administration department controls, to a certain degree, the work of the medical department, and hampers it so that at times the surgeon is not willing to continue in a position in which his work is superintended by some one who is not qualified to judge.

It would be ideal if we could adopt Dr. Kelly's motto to do less work and more real study; but here again we are limited because it seems to be the idea in many of our hospitals that the hospital is simply for work and not for study.

Dr. Kelly's address made a deep impression upon his audience, and it is hoped that much good will

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THE JEWISH HOSPITAL OF BROOKLYN.

Classon and St. Marks Avenues and Prospect Place.

Dedication, Sunday, December 9, 1906.

On Monday, December 17, 1906, the Jewish Hospital opened its doors for the reception of patients. The objects of the Society of the Jewish Hospital are to found, establish and maintain an institution, or institutions, which shall afford medical and surgical aid, nursing and comfort to sick and disabled persons, without regard to their creed or nationality, for though primarily established for the relief of people of the Hebrew faith, and supported chiefly by the gifts of Jews, the Hospital is not intended to be confined by any sectarian lines in its charity.

Of those who have been associated with the officers and directors of the Jewish Hospital in planning and developing it, the medical men have been especially impressed with the respect and appreciation shown by the Board of Directors in conferring, in all medical matters, with the prominent members of the profession in determining the lines along which the organization of the Hospital should be established; especially notable is the provision which has been made for the work of its pathologist, recognizing thereby the importance to the Hospital of the scientific work in this department. The chiefs of all the departments have been chosen with great care. They form an Advisory Committee to the Board of Managers in reference to medical matters.

In ordering the equipment for the Hospital, the question of the Board of Directors has been, "Is this equipment necessary for the best interests of the patients who are to be treated in this hospital?" Being assured of its need, they have, without exception, provided for it. The men who make up the Board of Directors of the Hospital are all business men, men of experience and men of judgment; but, without exception, they have realized that only medical men know the needs of a medical institution, and they have consulted freely with, and have been guided by the advice of medical men in which they had confidence. It is an honor to be a member of the Medical Board of the Jewish Hospital.

It is inevitable that the Jewish Hospital should rapidly take its place in the foremost rank of medical institutions in this city. At present, there are 75 ward beds available for patients, and accommodations for 25 private patients; this capacity will be rapidly increased until the Hospital will have 175 beds.

MEMBERS OF THE MEDICAL AND SURGICAL STAFF OF THE JEWISH HOSPITAL.

Consulting Physician:
JOHN A. MCCORKLE.
Consulting Surgeon:
LEWIS S. PILCHER.
Consulting Gynecologist:
ERNEST PALMER.
Physician-in-Chief:
JACOB FUHS.
Attending Physicians:
JOSEPH MERZBACH.
LEON LOURIA.
Associate Physicians:
JACOB LONDONER.
WILLIAM K. JACOBS.
Surgeon-in-Chief:
H. BEECKMAN DELATOUR.
Attending Surgeons:
J. BION BOGART.
WARREN L. DUFFIELD.
Associate Surgeons:
WILLIAM LINDER.
GEORGE I. MILLER.
Gynecologist-in-Chief:
GEORGE MCNAUGHTON.
Attending Gynecologists:
JOHN O. POLAK.
ALBERT M. JUDD.
Associate Gynecologists:
M. J. MALAMENT.
CHARLES TAG.
Obstetrician-in-Chief:
O. PAUL HUMPSTONE.
Associate Obstetrician:
EMANUEL J. LEAVITT.
Pathologist-in-Chief:
S. R. BLATTEIS.
Associate Pathologist:
B. FRANK KNAUSE.
Attending Orthopedist:
J. M. CLAYLAND.
Associate Orthopedist:
N. H. RACHLIN.
Attending Ophthalmologist:
WILLIAM SIMMONS.
Attending Aurist:
JOHN E. SHEPPARD.
Associate Aurist:
CHARLES W. STICKLE.
Attending Neurologist:
WILLIAM BROWNING.
Associate Neurologist:
E. F. LUHRSEN.
Attending Dermatologist:
J. M. WINFIELD.
Attending Laryngologist:
THOMAS R. FRENCH.
Associate Laryngologist:
PURDY H. STURGES.
Attending Cystoscopist:
PAUL M. PILCHER.
Associate Cystoscopist:
V. H. PENTLARGE.
Radiographist:
CHARLES EASTMOND.
Attending Physician:
A. HAYMAN.

THE METHODIST EPISCOPAL HOSPITAL.

OPENING OF ITS ADMINISTRATION BUILDING, TUESDAY, DECEMBER 4, 1906.

On Monday, December 17, 1906, the Methodist Episcopal Hospital of Brooklyn, popularly known as the Seney Hospital, opened its new building, the Halls Administration Building, for the reception of patients.

This building is to be devoted, first, to the reception of patients; second, the departments of administration; third, rooms and wards for private patients, and living rooms for the Superintendent of the Hospital and for the members of the Training School for Nurses.

Originally, this building was intended to be the monumental piece of the Hospital; for nearly twenty years it has remained incomplete, owing to the lack of funds and the great expense of carrying on the already completed portions of the Hospital. To the Rev. A. S. Kavanagh is due the credit for completing this building, for it was he who stimulated the interest of Mr. William Halls, Jr., receiving from him a gift of $125,000, contingent upon the raising by the Superintendent of an endowment fund of $500,000 to insure the payment of the running expenses of this building when completed.

In the remodeling of this new Administration Building, the original plans have been extensively changed, so that instead of being the monumental piece of the Hospital, it has become distinctly a private pavilion, and many of the original features have been sacrificed in order to provide more private rooms for the reception of patients. It is to be regretted that the original plans of the Hospital could not have been carried out.

MEDICAL FACULTY, 1906.

OFFICERS OF THE MEDICAL BOARD.

President: LEWIS STEPHEN PILCHER.

Secretary: JOHN BION BOGART.

SURGEONS.

Surgeons-in-Chief:
LEWIS STEPHEN PITCHER,
JOHN BION BOGART,
HENRY BEECKMAN DELATOUR.

Attending Surgeons:
JAMES PETER WARBASSE,
THOMAS BRAY SPENCE,
ARTHUR H. BOGART,
CHARLES HOWARD GOODRICH,
RUSSEL STORY FOWLER,
PAUL M. PILCHER,
WALTER A. SHERWOOD.

Assistant Surgeons:
STEPHEN LIVINGSTON TAYLOR,
ROBERT W. SHEARMAN,
FRANK E. BROWN.

PHYSICIANS.

Physician-in-Chief:
GLENTWORTH R. BUTLER.

Attending Physicians:
RALPH M. MEAD,
WILLIAM NATHAN BELCHER,
RAYMOND CLARK.

Assistant Physicians:
HENRY G. WEBSTER,
O. PAUL HUMPSTONE,
ROGER DURHAM,
FRANK B. CROSS.

OBSTETRICAL DEPARTMENT.

Obstetrician-in-Chief:
ROBERT L. DICKINSON.

Attending Obstetricians:
JOHN O. POLAK,
RALPH M. POMEROY.

Assistants:
SEWELL MATHESON,
O. PAUL HUMPSTONE.

DEPARTMENT OF LARYNGOLOGY.

Attending Laryngologist:
PURDY H. STURGES.

Assistant Laryngologists:
ALEXANDER HOWE,
C. THEODORE SAUER.

DEPARTMENT OF ORTHOPEDIC SURGERY.

Attending Orthopedic Surgeon:
CHARLES D. NAPIER.

Assistant:
WALTER TRUSLOW.

Charles Gardner Jenkins Finn.

In Memoriam

CHARLES GARDNER JENKINS FINN.

January 29, 1855— November 3, 1906.

Charles Gardner Jenkins Finn died suddenly of apoplexy at his home in Hempstead, N. Y., on November 3, 1906, after a very brief illness. His death has cast a gloom over the whole community, where he has been known and respected for so many years.

Dr. Finn was born in Brooklyn, January 29, 1855. His father, John T. Finn, was of English descent, being the son of John Finn, at one time associate editor of the *London Times,* and, later, a leading editorial writer upon the *New York Herald,* under the elder James Gordon Bennett.

Dr. Finn received his academic and college preparatory training at Pennington Seminary, and took his college course at Princeton. His medical training was gained at Bellevue Hospital Medical College, from which institution he received his M.D. in 1876. For about a year, he remained in the city, as an assistant to the famous surgeon, Louis A. Sayre. He then came to Hempstead, where he built up a large practice and won the esteem and confidence of all who knew him, as a wise and skilful physician and surgeon, and as a progressive and public-spirited citizen.

In 1880, he married Miss Addie Rushmore, only daughter of the late Benjamin F. Rushmore, of Hempstead, by whom he had one daughter, Lillian, now Mrs. Charles S. Thrasher, of Cleveland, Ohio.

Dr. Finn was prominent in social and fraternal circles. He was a member of the Hanover Club of Brooklyn and of the Reform Club of New York City. He also held membership in the Garden City Golf Club. He took high rank in the Masonic Order, and was a member of the Hempstead Lodge of the Independent Order of Odd Fellows. He was a communicant of St. George's Episcopal Church of Hempstead, and, for ten years, served as a member of the Hempstead Board of Education, always insisting upon thorough teaching and high scholarship.

For many years the doctor was a member of the Medical Society of the County of Queens, now known as the Queens-Nassau Medical Society, and was its secretary and treasurer for ten years, succeeding to that office the late Dr. W. D. Wood, of Jamaica. He was also connected with the New York Academy of Medicine, and was one of the Vice-Presidents of the Pan-American Medical Association. For some years past, he was visiting physician to the Cathedral Schools of St. Mary and St. Paul, at Garden City, to the Queens County Almshouse, and to the Mineola Children's Home.

His funeral was held from St. George's Episcopal Church, Hempstead, the services being under the direction of the Right Reverend Frederick Burgess, Bishop of the Diocese of Long Island, assisted by several other clergymen.

TRANSACTIONS

OF THE

ASSOCIATED PHYSICIANS OF LONG ISLAND.

The Twenty-fifth Regular Meeting, held at Long Beach, June 23, 1906. The President, Dr. E. H. Bartley, in the Chair. The meeting was called to order and the minutes of the previous meeting read and approved.

The following names were reported by the *Membership Committee*, and duly elected to membership:

S. Busby Allen, Riverhead, L. I., Bellevue, 1879.

William Warren Spiro, 116 Third Street, Long Island City, University and Bellevue, 1904.

Henry S. Fincke, Grand Avenue, Astoria, L. I.

Carl Boettinger, Steinway, L. I.

A. Ferree Witmer, Freeport, L. I.

Martin F. Burns, 426 Jackson Avenue, Long Island City.

Frank C. Raynor, 157 Clinton Street, L. I. C. H., 1886.

George B. Stanwix, 1170 Dean Street, Albany Medical, 1898.

The resignations of Dr. F. A. Cook and Dr. A. J. Rosanoff were received and accepted.

The President presented his inaugural address.

PRESIDENT'S ADDRESS.

While we may congratulate the Association on the measure of success it has attained in its first eight years, we may inquire if it has fulfilled all the objects for which it was organized. These objects, as stated, are "to bring into closer relationship the members of the County Societies of the Island." Also, "those of a general medical society, the study of the natural conditions and prevalent diseases of Long Island and the promotion of the medical interests of the medical profession."

To a very considerable degree these objects have been brought about. The cordial relationship of the members of the various County Societies has been promoted. It has stimulated the interest of its members in their County Societies, especially of those outside of the metropolis. Much more might be done in these directions if all the members felt it to be a personal duty to avail themselves of the opportunity to become better acquainted by regular attendance upon all the meetings.

We are well aware of the peculiar transit facilities of Long Island, and the inconvenience of reaching any one point, except Jamaica, from every other point. This undoubtedly limits the attendance at the June and October meetings. These two meetings are more largely attended by the city members, because through the liberality of the Long Island Railroad in furnishing us a special train, the travelling facilities are perfect for them. The outing afforded by these occasions is an attractive feature. The experience of the past has led to the growing feeling that a heavy scientific program is not desired by a majority of those who attend.

In fact, there is an apparent danger that the outing feature of these meetings may greatly detract from the avowed objects of the Association, as stated above.

In selecting the place of this meeting we have considered these matters.

Our scientific program has been arranged with the view of interesting as large a number of the members as possible. We have also planned to allow ample time for entertainment after the session.

There is one feature of the objects of the Association to which sufficient attention has not been paid. I refer to "The study of the natural conditions and prevalent diseases of Long Island." You may recall that about three years ago a Committee was appointed to investigate and report upon the prevalence and distribution of the malarial mosquitoes on Long Island. That Committee did some good work, but did not finish it; or, at least, did not carry it on to the extent intended by the original resolution. It should be taken up again by the appointment of another committee, which should be kept in the field until we have collected more definite and reliable information upon this important subject. Another subject of great interest and importance to all of us as well as to the general medical profession is tetanus. There is a general impression that this disease is epidemic on Long Island, and yet I do not know that it has been properly studied as to its distribution, etc.

Typhoid fever is another disease which ought to receive attention at our hands. The peculiar character of the soil, the fact that the Borough of Brooklyn receives its water supply from the soil of a large part of the Island, and that the population of that part is so rapidly increasing as to make the study of this disease, its prevalence, its distribution and its dangers from contamination of the water of supreme importance to nearly a million and a half of people.

These questions, I repeat, have not received the attention from this Association that their importance demands, and that the first article of our Constitution prescribes. I recommend that committees be formed to take up these subjects in a spirit of scientific investigation, either by collective investigation or by searching public records and report their conclusions to the Association. A subject that has already received some attention, but one that this Association ought to take up and keep before the people is the climatic conditions of our Island, and its value as a health resort and as a summer residence. Another subject to which I wish to call your attention, and one of great importance to the future welfare of the Association, relates to the publication of our proceedings. (See page 22).

A Committee consisting of Drs. MacEvitt, DeLano and Zabriskie were appointed to consider the recommendations of the President, and this Committee reported as follows:

Your Committee approves and recommends the adoption of the following suggestions, contained in the presidential address:

1. That separate Committees be appointed for the purpose of taking up the scientific investigation of the following subjects, viz.: First, Malaria on Long Island; second, Tetanus on Long Island; third, Typhoid Fever on Long Island. That said Committees be permitted to collect data for their reports from any available source, and that such Committees be not discharged until their reports are complete.

2. The Committee further reports, that it recommends the publication of a monthly medical journal to be known as THE LONG ISLAND MEDICAL JOURNAL, and that the publication of the transactions of the Associated Physicians of Long Island be suspended, and that an effort be made to issue the first number by January 1, 1907.

3. That there shall be a Publication Committee composed of one member from each of the three County Medical Societies of Long Island.

4. That said Publication Committee be appointed by the Board of Directors, and their continuance in office be left to the discretion of the said Board of Directors.

5. That the President and Treasurer of this Association be *ex-officio* members of said Publication Committee.

6. That the President and Board of Directors, with the consent of the Association, be empowered to continue and complete negotiations with Mr. G. L. Harrington in the matter of the publication of the proposed Medical Journal.

7. Your Committee also suggest

that in the event of the adoption of the foregoing recommendations, that notice be given at this meeting of the necessary changes to be made in the by-laws.

The report of the Committee, with the recommendations therein contained, was adopted.

SCIENTIFIC SESSION.

Thomas R. French, M.D., Chairman.

PERSONAL EXPERIENCES WITH THE NEWER GENERAL ANESTHETICS.

Dr. Adolph F. Erdmann read a paper with the above title which will be published in the February number.

THE CONDITIONS GOVERNING THE SELECTION OF A GENERAL ANESTHETIC.

Dr. William C. Woolsey read a paper with the above title, which will be published in the February number.

KNOWLEDGE OF THE EYE WHICH IS OF USE TO THE GENERAL PRACTITIONER.

Dr. S. Busby Allen read a paper with the above title (for which see page 15).

Dr. L. A. W. Alleman said that it seemed to him that the knowledge of the diseases of the eye requisite in general practice is such a knowledge as will enable the physician to divide his cases into those he should treat and those he should let alone. He should be able to recognize those dangerous diseases of the eye, the treatment of which requires special training, and should also be able to know such cases as properly belong to him and which he is competent to treat.

The speaker does not teach his students to use the ophthalmoscope. It takes a long time to become an ophthalmoscopist, and a man not an expert sees things that are not in the eye to a degree that is dangerous. Those cases in which the most assistance is obtained from an examination of the fundus of the eye, are the cases that tax to the utmost the man who is expert in the use of the ophthalmoscope. The beginning pathological changes are the ones that are so often unrecognized by physicians, and one is very apt to go wrong without wide experience with that instrument.

Dr. Alleman believed that with a condensing lens, a dark room and a head mirror, a doctor can find out about all that is necessary, and he can find out a good many more things than he usually does. He can detect a beginning cataract and dislocation of the lens and any irregularity of the pupil due to beginning iritis. Such diseases as iritis, the differential diagnosis of iritis and conjunctivitis, the treatment of conjunctivitis and the removal of foreign bodies, and, above all things, the early recognition of the pronounced symptoms of glaucoma are matters with which the general practitioner should be familiar.

Another disease which should be borne in mind by the general practitioner is that of sympathetic ophthalmia. The recognition of conditions in the injured eye, which may lead to the sympathetic recovery of the uninjured eye, is of the highest importance. No one wants on his conscience a man with two blind eyes, blind because he did not know enough to tell the patient of his danger.

Dr. Allen in his paper spoke of blindness in diabetes being due to a cataract. It is frequently due to some change in the density of the media and not to elongation of the globe.

The study of the pupillary changes is important, but comes more under the operation of the neurologist than of the oculist, and an important part of the equipment of a general practitioner is the knowledge that the ophthalmoscope can give information of the onset of general disease, which is resultant in the condition of the fundus long before general symptoms are discoverable.

Dr. J. Scott Wood thought that the general practitioner ought to have all the knowledge possible about the eye, but his experience was that all of this knowledge which had been pointed out to-day is one practically unknown. By that he meant the question of glaucoma. Oftentimes it is a very difficult thing for specialists to tell whether there is increased tension of the eyeball or not. The cases of other inflammatory conditions of the eye is one for the specialist to tell whether it is iritis, conjunctivitis or keratitis beginning.

While all knowledge in medicine is useful, yet he thought we ought not to lose sight of the fact that a little knowledge is a dangerous thing, and in his personal experience he had found that those cases which have been treated by the general practitioner, and afterwards found their way to the specialist, are cases that would have been better off if they had come to the expert in the beginning. The speaker meant no reflection on the general practitioner at all, but it is a fact that a little knowledge in ophthalmology is a very serious thing sometimes to the patient. While he would certainly agree that the general practitioner ought to have a knowledge of the eye, his refrain would be, since the general practitioner does not have an opportunity in clinics and institutions devoted to ophthalmology alone, that very little good can be accomplished by him in treating or diagnosing glaucoma or the other diseases of the eye.

There are occasionally conditions such as conjunctivitis, which can be treated by the general practitioner, but he had often cases that he did not know whether it was conjunctivitis, iritis or keratitis in the beginning. That a moderate amount of knowledge of the eye is useful for the general practitioner, the speaker questioned very much.

Dr. W. H. Snyder said that it seemed to him that the general practitioner in the first place has not sufficient time and advantage to use the ophthalmoscope. It seemed to him that the amount of ophthalmoscopic knowledge, in their limited experience, would be of no use to them. It appeared that the doctor had gone more deeply into the use of the instrument than the general practitioner would have time to follow. The speaker thought the office of the general practitioner would be to recognize the normal appearance of the normal eye, and from that to determine the abnormal condition, and a differentiation of iritis from glaucoma, because in the case of iritis you use one kind of drugs, and in the case of glaucoma you use another kind of drugs, and yet it seemed to him unsafe for the general practitioner to treat these two diseases. They often do, and make the mistake of treating glaucoma for iritis, and get the patient in more trouble than when he began. It is better to refer such cases to the specialist, with whom it will be easier to differentiate these two conditions. The general physician should be able to remove foreign bodies, as that does not take any special skill. It should also be his office to differentiate the different kinds of diseases of the lid—for instance, catarrhal or phylctenular conjunctivitis or keratitis. Of course, phylctenular conjuctivitis could be very largely controlled by the physician, because if the specialist has to take that case in charge, he has also to treat the patient generally as well as specially.

It seemed to Dr. Snyder that the general practitioner should be able to make use of the test cards for near and distant vision. If the patient has headaches and things of that kind, he can tell by the distance card if the sight is perfect.

Dr. S. B. Allen, in conclusion, emphasized the fact that the general practitioner can recognize a case of acute inflammatory glaucoma, and if they do not recognize it, they can not forgive themselves afterward. He had simply used his index finger on the eye, he would have found the difference in tension. It is a very decided tension and is not difficult to differentiate, and then he could have called in help and saved the eyesight.

Twenty-sixth Regular Meeting, October 13, 1906. Held at Greenport, Long Island.

The President, E. H. Bartley, M.D., in the Chair.

The meeting was called to order and the minutes of the previous meeting read and approved.

The following were proposed and duly elected to membership of the Association:

Robert F. Ives, 22d Avenue and Eighty-fifth Street, Brooklyn.

Charles Eastmond, 382 Adelphi Street, Brooklyn.

Bruce G. Blackmar, 317 Ovington Avenue, Brooklyn.

Fred. C. Valentine, Belle Harbor, L. I.

The Committee appointed at the last meeting to amend the Constitution to meet the changed conditions incident to the proposed publication by this Association of the LONG ISLAND MEDICAL JOURNAL, offered the following amendments:

Article II, Section 4. Expunge.

Article II, Section 5. To become Section 4.

Article III, Section 1. On third line omit "Committee on Publication."

Article V, Section 1. Omit "The Publication Committee shall provide a channel for the publication of papers, and shall issue a revised edition of the manual after each annual meeting. They shall also provide a book for the registry of members attending each meeting.

Article V, Section 2, to read as follows: "The Committee on Publication shall consist of one member from each County Society in the Association, and shall be elected annually by the Board of Directors. One member of said Committee shall be elected by the Board of Directors as Editor of the Journal, Chairman of the Committee.

The President and Secretary shall be *ex-officio* members of the Committee on Publication and shall be notified of all meetings of the Committee. The Committee shall have charge of the publication of the Journal of the Association, and shall publish in it the proceedings of the Association and scientific papers read before it.

They shall issue a revised edition of the manual of the Association after each annual meeting. They shall also provide a book for the registry of members attending each meeting.

Article V, Section 3. All papers read at any of the meetings shall be the property of the Association.

Article V, Section 2. To become Section 4.

The amendments to the Constitution were adopted by vote of the Association.

SCIENTIFIC SESSION.

Under the direction of the Suffolk County and the Queens-Nassau Medical Societies.

Dr. W. H. Ross, President Suffolk County Medical Society.

Dr. William J. Burnett, President Queens-Nassau County Medical Society.

1. Paper: "History of Suffolk County Medical Society," by Frank Overton, M.D.

2. Paper: "Some Historical Notes," by James S. Cooley, M.D.

3. Paper: "Therapeutics, the Old and the New," by James P. Warbasse, M.D.

A motion was carried to tender a formal vote of thanks to the management of the Long Island Railroad in recognition of the appreciation of the members for the courtesy of providing a special train to Greenport. Carried.

Adjourned.

JAMES COLE HANCOCK,
Secretary.

NINTH ANNUAL MEETING OF THE ASSOCIATED PHYSICIANS OF LONG ISLAND,

To be held on Saturday, January 19, 1907, at 3.30 P. M.,
At the Library Building of the Kings County Medical Society,
1313 Bedford Avenue, Brooklyn, N. Y.

Executive Session—Election of Officers for 1907.
Scientific Session—Thomas R. French, M.D., Chairman.

TRANSACTIONS

OF THE

BROOKLYN PATHOLOGICAL SOCIETY

EDITED BY CLAUDE G. CRANE, M. D.
471st Regular Meeting, November 8, 1906.
The President, R. W. WESTBROOK, M.D., in the Chair.

THEORIES CONCERNING THE PATHOLOGICAL ANATOMY OF THE THYROID IN GRAVES' DISEASE.

BY JAMES EWING, M.D.,

NEW YORK, N. Y.

THE first theory of the nature of Graves' Disease, in medical literature, was that of Basedow. He believed that Graves' Disease was a blood dyscrasia, an opinion which he formed on account of the resemblance of some cases to scrofula on the one hand, owing to the enlargement of the neck from both the thyroid and the lymph nodes, and on the other hand, to chlorosis, since the characteristic anæmia of the disease is often a very prominent symptom. This theory of the disease could not stand long, when it was noticed that Graves' disease occurred in full blooded males, and in some cases it pursued a rapidly fatal and febrile course.

The first theory that gained much currency was proposed by Koher in 1855, namely, that the disease resulted from a neurosis of the cervical sympathetic. It was supported by Claude Bernard and Von Graefe. Von Graefe pointed out that the symptoms of the disease may be explained through pressure on the sympathetic by the enlarged lymph nodes, and also, in the more advanced stages of the disease, by the enlarged thyroid. Claude Bernard contributed experimental evidence favoring this theory when he showed that by section of the cervical sympathetic vaso motor distention of the vessels on that side of the neck followed, while by stimulation of the cut end he was able to produce a dilation of the pupil. Of course, it will be recognized that these two supposed actions of the cervical sympathetic, vaso motor paralysis accompanied by stimulation, involve antagonistic actions on the part of one nerve trunk, and it was immediately seen that this was illogical. This theory of the origin of the disease as a neurosis of the cervical sympathetic was finally abandoned on this account.

Succeeding it was the theory proposed by Benedict shortly after, who included the entire sympathetic system in the scope of the disease. It fell when experimental evidence pointed to a lesion in other organs.

The vagus was regarded from the first as prominently concerned in the symptoms, and a French observer, Gros, actively maintained that all the symptoms of the disease could be explained as a neurosis of the vagus nerve. The prominent connection between Graves' disease and gastro intestinal disorders seemed to be explicable by supposing that the disturbance resided in the vagus nerve. This theory failed to explain the vaso-motor symptoms, and so Sattler included both the vagus and sympathetic in the primary lesion, and when this was done it was thought that the final solution of the nature of Graves' disease was reached.

During all this time it had been shown that in many cases there were definite anatomical lesions in the central nervous system, chiefly in the medulla. There are a series of cases collected by Müller, in which various degenerations, hemorrhages, and pathological changes of a variety of types, were found in the medulla and spinal cord, and Balle was the first to definitely claim that the disease might be explained as the result of certain definite anatomical changes in the medulla. At this time Filéhne was able to reproduce almost exactly the three cardinal symptoms of Graves' disease, the exophthalmos, the tachycardia, and the goitre, by performing a section of the medulla just below the corpora quadrigemina without injuring the floor of the fourth ventricle. He was able to produce all three of the cardinal symptoms, but not all of the three at any one time, and while this was interesting, it was not sufficient to demonstrate that such a lesion is the essential cause of the disease. Moreover, further pathological studies showed in the great majority of cases of Graves' disease at autopsy the medulla is found practically normal, so that the essential importance of lesions in the central nervous system was finally disproved. Nevertheless it was a firmly rooted opinion, that the malady must necessarily be a nervous disease, and in order to accommodate the various beliefs, Maret, Chaneat and others, came to the conclusion that we must inculpate the entire central and peripheral nervous system and regard the disease as an intrinsic neurosis involving all parts of this system. At the present day perhaps the most influential theory remains the theory of intrinsic neurosis.

The majority of contributions so far reviewed were written from the standpoint of neurologists, who believed Graves' disease to be a neurosis, yet, as must appear, the theory of intrinsic neurosis does not convey any very definite meaning.

While all this discussion was in progress, and while there were recorded a considerable number of definite lesions in the body, and especially in the thyroid gland, it was not until 1891 that Möbius claimed that the disease was not a neurosis at all, but a disordered state of the thyroid gland, and while the nervous system was chiefly responsible for the vicious circle which kept up the process, yet it was an entirely secondary factor in the disease. The proof of this claim was defective in many respects, especially in regard to the histology of the thyroid. This deficiency was made up by Greenfeld in 1893, who, in a remarkable contribution, described very fully the lesions of the thyroid in Graves' disease. He pointed out after describing four or five typical cases, that the histological changes in the thyroid gland signified a functional hyperplasia, and it is on this evidence that the present theory, which I believe to most fully meet the requirements, is based—the theory of a chemical intoxication, by an abnormal product of a disordered gland.

There are a number of circumstantial facts pointing to the correctness of this theory. In the first place stands the remarkable enlargement of the thyroid gland, which naturally directs attention to it as one of the essential factors. It is often insisted that Graves' disease occurs without enlargement of the thyroid gland and in the majority of cases of goitre there are no Graves symptoms, but as clinical analysis has progressed the number of cases of common goitre showing slight grades of nervous symptoms has become much larger than was formerly supposed.

The study of myxœdema contributed very strong evidence to the theory that the thyroid is primarily at fault in Graves' disease. It was found that certain cases of exophthalmic goitre terminated after ten or twelve years in myxœdema, and at autopsy the thyroid gland was in every instance found atrophied. These two facts, the relation of the thyroid to myxœdema, and the termination of some cases in myxœdema, point to the thyroid as responsible for both diseases.

Again there are the remarkable results following surgical treatment of exophthalmic goitre. In a large number of cases of Graves' disease removal of a portion of the thyroid is followed by relief of the symptoms and cure of the disease.

Some years ago thyroid extract was employed, and is now employed, for the reduction of obesity and for various symptoms connected with it, and it was thus shown that the thyroid secretion had a very definite action in the human body. Many cases receiving considerable doses of thyroid substance by stomach were found to develop symptoms resembling Graves' disease, and in a considerable number of well authenticated cases, over-feeding of thyroid substance has given rise to very excellent imitations of true Graves' disease. This led to a very careful chemical study of the substance of the thyroid, and perhaps the most important contribution to the knowledge of Graves' disease was that furnished by Baumann, who in 1894, was able to extract from the substance of the thyroid gland a definite chemical body called "iodo-thyrin," which, given by mouth or hypodermically, was found to contain all the active principles of the thyroid gland.

It was found later by Hutchinson in England that most of the iodo-thyrin in the gland is contained in the colloid, and this increased our means of interpreting the various histological changes in the gland. In the sections to be shown, it will be noted that the glands containing large quantities of colloid contain, in all probability, large quantities of the active principle of the gland called iodo-thyrin.

The combination then of these lines of circumstantial evidence, along with the knowledge of the histology of the gland, and finally entrenched by the study of its physiological chemistry, have placed the theory of thyroid intoxication as the cause of the disease on a very firm foundation.

This theory, however, is not yet fully demonstrated. In the first place all cases of Graves' disease do not have a large thyroid. Moreover, in those glands which are removed at operation or autopsy, the colloid, which is supposed to contain the iodothyrin, is frequently diminished, and sometimes absent, in proportion to the severity and length of the disease, so that the theory of increased secretion cannot apply to all cases, or to all periods in the disease. It is possible that the glands deficient in colloid have been rapidly drained of this substance by the blood or lymph vessels, but this supposition is not fully borne out by the histology of such glands. Nevertheless while we do not contend that our knowledge of the disease is complete, while we must admit that there are many obscure points in its pathogenesis, yet, the speaker said, there was a growing conviction that the main conclusions involved in the theory of hyperthyroidization will not have to be seriously altered. Lack of knowledge of the normal physiology of the thyroid gland is the chief obstacle in the way of a better explanation of the nature of Graves' disease, and it is to this field that research should first be directed.

The pathological changes of the thyroid in Graves' disease were illustrated by lantern slides.

SERUM THERAPY IN GRAVES' DISEASE.

BY JOHN ROGERS, M.D.,

NEW YORK CITY.

TWO years ago my attention was first called to the importance of serum therapy in Graves' disease while watching some experiments conducted in the Cornell Medical College laboratory by the biologist in charge, Mr. S. P. Beebe, who had been conducting experiments with poisonous sera that were designed to be specific for the liver, kidney and pancreas, and seemed to have obtained a serum whose effect was limited about as closely to these organs as anything that could be found. At that time I was following the therapy of Graves' disease for personal reasons with a great deal of interest, and these experiments of Mr. Beebe's seemed directly applicable to the treatment of this condition. A serum which could destroy the liver or kidney could be made on the same principle applicable to the destruction of thyroid glands, and in proper doses might be made to inhibit the action of the thyroid gland. At that time we obtained at autopsy the thyroids of two cases of Graves' disease, and in consultation with Mr. Beebe it was decided that these glands would be more closely fitted for the treatment of Graves' disease than normal thyroids.

The method of preparation of the serum from these glands was somewhat as follows: The glands were ground to a pulp, dissolved in normal salt solution and put in the refrigerator for twelve hours. The coarser fragments were then strained off and the filtrate containing the proteids in solution was treated by dilute acetic acid, which precipitated the nucleo-proteids. As the thyroglobulin is supposed to be the active secretion of the gland it was decided to include in the precipitation this substance, and it was obtained by adding ammonia sulphate to the original solution up to the saturated point. The combined precipitates of nucleo-proteids and thyroglobulin were then separated from the liquid by the centrifuge and purified by resolution. precipitation and dialysis.

Mr. Beebe injects this combined precipitate of nucleo-proteids and thyroglobulin in small amounts into rabbits, dogs and sheep at intervals of five to six days for some six or seven weeks. The animals are then bled from the carotid, and the serum thus obtained may be supposed to contain an anti-body for the epithelium of the thyroid gland and for its secretion, or the thyroglobulin; in other words, it is both cytotoxic and antitoxic. It can be shown by a chemical test that the serum contains a cytotoxin, but the antitoxin cannot be so clearly demonstrated.

The first serum thus obtained had an excellent effect in comparatively small doses. During the first year only a small number of cases were tested, and curiously enough these were chiefly the rare toxic forms of the disease. Later there followed a period when the serum did not seem to be efficacious, and great variations were noted, which produced considerable confusion, until Mr. Beebe devised an ingenious test by which the activity of any particular serum could be demonstrated. This test can be compared to the Widal reaction for typhoid fever, in that the thyroid serum will agglutinate minute fragments of thyroid glands exactly as typhoid bacilli are agglutinated by the serum from typhoid patients. The rapidity and the amount of the agglutination of the thyroid fragments by the antithyroid serum determines the activity of the serum. By this test certain positively bizarre things were demonstrated. For instance, it was noticed that only certain kinds of rabbits would produce a serum of satisfactory quality. The white rabbit was useless, and the black rabbit was slightly better, but the gray rabbit was the best; not only was the gray rabbit needed, but the animal had to be a male of the Belgium hare species. The dog, though a very desirable animal, on account of its size and quantity of serum obtainable, was almost useless. The sheep—though several times the trials failed—occasionally produces a serum which is excellent; but it is so large an animal that a great deal of tissue is required for the inoculations and the material is far from inexhaustible.

After various trials it was found that the limit of dosage was about 1 c. c. of rabbit serum (normal rabbit serum in 2.3 c. c. dosage is toxic to a certain proportion of human beings). Normal dog serum in more than 1 c. c. dose produces bad headaches; but normal sheep serum seems to be innocuous. The most active serum which has been obtained is the rabbit serum, but its administration has to be conducted rather cautiously, as a certain number of patients sooner or later become "sensitized," and may react very unpleasantly. If, for example, the rabbit serum is given every three or four days, for a dozen or more doses nothing untoward results, but if the 1 cc. dose is given two or three times in succession, and then a period of from nine to fourteen days allowed to elapse before repeating the dose, about one patient in ten immediately after the injection will suffer from a feeling of faintness, and complain of great dyspnea and pain over the heart; the surface of the body then becomes flushed and marked cyanosis appears. The pulse becomes rapid and feeble, and there may be vomiting and diarrhœa. The whole appearance is one of great distress, and may result fatally, but as yet recovery has always taken place within an hour or two, although the patient remains weak and uncomfortable for about a day.

The constant reaction of the antithyroid serum consists in a swelling which begins around the point of injection about six hours subsequent to the injection and spreads some distance from it and presents the general appearance of erysipelas. At the same time there is a more or less marked exacerbation of all the Graves' symptoms which may continue for about twenty-four hours and then gradually subside, leaving the patient better than before the injection was given. If, however, the injections are given carefully, and not in excess of 1 cc., these constitutional symptoms are not bad. There are in addition variations in the individual depending upon the type of the disease and upon the personal idiosyncrasies of the patient.

The definite clinical types of Graves' disease which can be recognized include (1) *simple exophthalmic goitre,* with all the cardinal symptoms; (2) *chronic toxic types of thyroidism,* which runs a course of one to five or six years, with severe symptoms, some fever, and generally terminates in death, which is produced by secondary lesions in the viscera and general anasarca. This type is a very dangerous one, and may terminate in sudden death, which the autopsies show has apparently some connection with the condition of status lymphaticus. (3) *The acute toxic form* of the disease, which Dr. Ewing described as very poisonous, running a rapid course, with fever, and showing many of the characteristics of a malignant endocarditis. (4) The *psychopathic or neuropathic type,* in which the patient during the course of the Graves' disease, or after the subsidence of the typical symptoms, shows pronounced mental disorder. Neuropathic cases present more or less pronounced atrophy of certain muscles or groups of muscles which simulate the condition of an anterior poliomyelitis or neuritis. In a lesser degree this atrophy of certain muscles, especially those in the hands, is not uncommon in some of the more pronounced typical cases of Graves' disease. In addition to these there is a fifth or atypical condition which shows only a few of the classical signs, and may present intermittent symptoms of gastro-intestinal disturbances, but always has, with the other symptoms whatever they may be, the usual tachycardia and soft pulse.

The typical cases with moderate symptoms will nearly always recover, but do so very slowly, and it may require six to eight months to effect a cure; and some of them may never be entirely cured of all the objective symptoms, although by perseverance and use of different forms of sera the subjective symptoms may be made to entirely disappear. The chronic toxic cases, with secondary lesions, large nodular thyroids, and dilated thyroid veins, are probably incurable, although they may be relieved of some of their most distressing symptoms. The psychopathic and neuropathic cases are very unfavorable, and it is not probable that if marked changes have occurred in the central nervous system much can be expected.

The acute toxic cases that suffer from fever, and have probably in the past nearly always died, do the best with the least number of injections, and will probably all recover completely.

The atypical cases are doubtful, and have not proved very satisfactory.

As regards the individuals, some inexplicable differences have been encountered.

The men have made up only about ten per cent. of the total number of cases, and as a rule do not do well; and out of five cases we have only positively cured one, the others showed simply some improvement, or failed entirely.

The cases which have been operated upon and sooner or later suffered from a recurrence of the original symptoms with enlargement of the portion of the gland left, have proven particularly refractory. Out of four of these cases only two had been at all benefited. The condition of the thyroid gland always regulates the prognosis.

The hard, nodular, irregular thyroid generally found in the chronic toxic cases and showing numerous dilated veins, has usually a poor prognosis.

The very large, firm thyroids of symmetrical outline generally belong to patients whose recovery under this serum therapy will be very slow, especially if the goitre is accompanied by pronounced exophthalmos. As a general thing the smaller the thyroid and the less the exophthalmos, the better is the prognosis; in other words, the earlier the condition comes under observation the better are the results.

Mr. Beebe began by using only the pathological thyroids of Graves' disease as these seemed to be the most nearly related to the organs to be treated. These thyroids yield an abundance of nucleo-proteids, while the normal thyroids yield almost none. And the serum made from the normal thyroids was found to have little or no effect. Then I removed at operation one or two of the ordinary adenomatous or colloidal goitres, and unless there was much cystic degeneration these organs were found to contain large amounts of nucleo-proteid matter, and to produce almost, if not quite, as good a serum as that from the pathological thyroids of Graves' disease; from this it can be seen that the nucleo-proteids are apparently the essential element in the manufacture of the serum. The normal thyroids, if they could be obtained fresh and immediately after death, might be useful, but autolysis occurs so rapidly that the nucleo-proteids are largely destroyed.

Hence it can be seen that a fresh goitre of almost any kind can be utilized with advantage, though the Graves' goitres are apparently the best, and the laboratory will be thankful to receive any donations of this nature, which surgeons can send us. They should be placed immediately after removal in a sterile glass jar containing normal salt solution, to which is added a teaspoonful of saturated alcoholic solution of thymol.

Of a total of fifty-six cases of Graves' disease treated up to October 1st, of these 18 had been cured of every symptom, including the goitre and exophthalmos; 31 had been improved; 3 had failed; and 4 had died. Many of the improved cases should really be called cured because, though they may still show some goitre and exophthalmos, they suffer from no abnormal subjective symptoms. The failures included the post-operative case, one that recurred, and one man. The deaths included one chronic toxic case which dropped dead suddenly a month after treatment had ceased; one which had been operated upon after some improvement had occurred under serum therapy, and who died shortly after the operation from acute thyroidism. And one acute toxic case which died in spite of the medication, very much improved in fever, pulse rate and general symptoms, but later developed coma and perished apparently from a hemorrhage into the respiratory center of the medulla, which took place when recovery seemed imminent. The fourth death occurred in a chronic toxic case, which received several doses of anti-thyroid serum, and died three or four days subsequently, with a rising pulse and temperature.

In conclusion it is necessary to correct the impression that the serum is dangerous. It very rarely causes any of the serious symptoms which have been designated as those of sensitization of the rabbit serum. If it is borne in mind that this may occur after a certain number of doses, and at a definite interval it can be avoided.

The sheep serum, if it can be obtained, is perfectly safe and entirely free from this danger.

Dr. Beebe has supplied both the rabbit and the sheep serum to over a hundred physicians in all parts of the country, and no reports have been received as yet of any deaths following its administration; full directions are given with each case of tubes which have been distributed.

Dr. Joshua M. Van Cott said that he did not regard goitre as explained by the hyperplasia of the parenchyma of the thyroid gland. It is easy to show that the parenchymatous cells have multiplied, but difficult to show how or why. In the last analysis it mav very well obtain that the nervous system has exercised some positive or negative trophic influence over these somatic cells, which has removed the control supposed to exist by Thiersch and Ribbert over their growth, with a resultant hyperplasia.

The normal product of the thyroid body is supposed to be thyroidin; a substance which is known to split up fats and albumins, and which is assumed to neutralize endogenous toxins.

It is a fair question whether the hyperplastic cells of goitre produce a normal thyroidin; it may be reasonably assumed that they do not, a fact which may explain some of the clinical phenomena of goitre.

With regard to the work of Dr. Rogers, it is an inductive method. He essays to produce a cytolysin which destroys the hyperplastic cells of the thyroid gland. If they are similar to the normal cells, it would seem that there would be no escape from a destruction of the entire gland. If they are dissimilar, the serum obtained would, on the theory of the specific nature of immune bodies, be specific to the abnormal cells; and no hope could possibly be entertained of destroying these abnormal cells with a serum obtained from a normal thyroid gland. On the contrary the normal parenchyma of the goitre would be dissolved, and the pathologic cells would escape injury. This would seem to the speaker to account for the variation in results reported by Dr. Rogers.

TRANSACTIONS
OF THE
BROOKLYN SURGICAL SOCIETY.

Regular Meeting, November 1, 1906.

The President, O. A. Gordon, M.D., in the Chair.

THE TREATMENT OF ACUTE OSTEOMYELITIS.

A paper with the above title was read by Walter C. Wood.

RIEDEL'S LOBE OF LIVER.

Dr. William F. Campbell reported the case of a woman, age 47 years, married for twenty-seven years, eight children. Was well up to two years, when she began to suffer from chronic constipation. Pain in the back and right side, with sharp shooting pains reflected to the back and right shoulder. The pain was relieved when lying down. There was loss of appetite and pain three-quarters of an hour after ingestion of food, which continues for about one hour and then passes off. She has lost twenty pounds of flesh. Avoids food because of the pain which follows its ingestion.

Blood examination shows red corpuscles 5,300,000, white corpuscles 12,000, hemoglobin 85%.

On examination a tumor was found on the right side extending to the right iliac fossa; there was dullness on percussion, which was continuous with the liver. Tumor descended with the diaphragm and liver in respiration. Diagnosis of movable kidney or neoplasm of the ascending colon was made.

At the operation a Riedel's lobe of the liver extending from the lower border of the ribs to the right iliac fossa was found. This was tongue-like in shape, its base being broad and gradually narrowing down to its tip. There was no palpable disease of the gall-bladder, and the abdomen was closed without further interference.

It is interesting to note in these conditions that women are more frequently affected than men, which has been attributed to tight lacing. Cholelithiasis has been so frequently found to accompany this condition that many observers have regarded it as a direct cause.

In a case reported by Terrier the morbid condition of the gall-bladder was treated and the tongue-like lobe disappeared.

The most striking symptoms accompanying this condition are pain in the back, with a sense of oppression in the right hypochondrium. The abdominal pain may be at times paroxysmal, like that of gall stone colic. The pain is relieved by resting in a recumbent position.

Dr. J. C. MacEvitt, referring to the case of Riedel's lobe of the liver mentioned by Dr. Campbell, recalled a similar case presenting all the classical symptoms of indigestion. The patient was a young woman. A tumor was found on the right side. It was a question of enlarged kidney or distended gall-bladder. Laparotomy was resorted to, and the condition as described by Dr. Campbell, of a Riedel lobe of the liver, was found, which descended and touched the iliac fossa.

The interesting point in this particular case is that, since that time, the patient, while not well, has been greatly alleviated as a result of this opening of the abdominal cavity. She still suffers from pain and has symptoms of indigestion, but the intense paroxysmal pain that she had before the opening of the abdomen has disappeared.

The case is interesting, the speaker said, from the fact that in making diagnoses of abdominal tumors, it is well to bear in mind the fact of this Riedel's lobe existing.

INTRASCAPULO-THORACIC AMPUTATION.

Dr. William F. Campbell reported a case of osteo-sarcoma of the head of the humerus, in which he did an intrascapulo-thoracic amputation. She had been married five years, had one child and one miscarriage; her general health was always good. Last March she noticed when she raised her arm to comb her hair or fix her hat, that she had pain in the shoulder over the deltoid region. In July she noticed some pain and stiffness in the shoulder. There was at this time a well developed lump situated below the acromial end of the clavicle. This had continued to grow until at the present time the following conditions presented:

> On the anterior surface of the head of the humerus is a large swelling very hard and projecting inward to the middle of the clavicle. The skin over the swelling is tense, the veins are dilated and prominent. There is no free movement in the shoulder joint. Any attempt to move the extremity causes great pain and carries the scapula with it. There is increased heat over the swelling, pain is constant, and occasional intense flashes of pain which start in the back of the shoulder and dart through to the anterior wall of the chest.

The speaker, in planning the operation, determined to do it in two stages; to resect the clavicle and ligate the subclavian artery at the first sitting, and subsequently to do the remaining portion of the amputation. He thought in that way he would be able to divide the shock over two periods, and the patient be able to stand it much better than if done at one sitting. With this idea in mind he resected the clavicle and tied the subclavian. The patient recovered without difficulty, and three days later he did the amputation. Just as soon as the muscles and nerve cords were cut, the upper extremity with the scapula fell off from the trunk, and there was no difficulty in severing the few muscles that were attached to the scapula. Notwithstanding the fact that he had been very careful about previously ligating the subclavian, there was a great deal more hemorrhage than there ought to have been, and the patient did not recover from the shock of the operation, but died five hours afterward.

ANGIO-NEUROTIC ŒDEMA.

Dr. William F. Campbell said this patient came to him with a swollen left leg and foot. The patient had no history of any severe illness, except that she was operated on at St. Catherine's Hospital six years ago for appendicitis and ovarian trouble.

When she was 15 years old she first noticed a swelling on the left leg below the knee. It was associated with some pain. This attack lasted for about five weeks. There was no subsequent attack. After leaving the hospital six years ago the leg again began to swell, and the attack lasted two months. In 1904 the patient had a third attack. She suffered with pain in the leg, and found a sensitive spot from which she removed a sewing needle. Her fourth attack was in 1905. The leg again swelled up, and at this time there was some watery exudation through the skin.

The present attack began fourteen weeks ago with severe pain and swelling, and the exudation of watery serum was quite persistent. She says the swelling subsides when the exudation is over. When the swelling goes down the patient complains of burning pain in the leg. Her family physician incised the leg, in order that the exudate might have free discharge. At the time she has this swelling the urinary secretion is very profuse and frequent. Menstruation is regular and not associated with any special pain.

When she came to the speaker she was very positive that she had some part of a needle in the leg, and she pointed to a certain tender spot in the leg where she thought the needle was. On examining with the X-ray no needle was found there. There was a very distinct swelling of the leg from the knee down. The foot was enormously swollen. There was no special abnormality in the blood count; the red corpuscles numbered 6,000,000, whites 6,000, and the hemoglobin 80%. There was no change in the urinary secretion; no albumin.

The subject of angio-neurotic œdema is exceedingly interesting, but the etiology of it is as yet positively unknown. It is an œdema which occurs without any inflammatory, cardiac or renal basis, and, as most writers have said, it simply has an angio-neurotic basis. It has been described very carefully by Quincke, who has written a very classical article on it. He gives the following symptoms as pathognomonic of it? the skin of the œdematous part is usually normal in color or of a pale pink, and it does not pit on pressure. It seemed to the speaker that the œdema he investigated did pit on pressure. It has an abrupt onset and the tendency is to recur. The affection is practically a chronic one and has a neuropathic basis. The remissions are frequent and prolonged, and there is really no actual cure. Patients in whom this angio-neurotic œdema is found have usually a defective nervous system.

CYSTOSCOPIC EXAMINATION AND CATHETERIZATION OF URETERS IN CASE OF SARCOMA OF KIDNEY.

Dr. Paul Pilcher reported the following case: Man, 19 years of age.

Abdominal examination revealed a tumor in the left upper abdominal quadrant, protruding forward and not causing any fulness behind the kidney in the loin. There is a distinct depression between the tumor and the free border of the ribs; and exact estimation of the size of the tumor is not possible. The tumor itself is rounded, and with a sense of semi-fluctuation; there are no sharp edges. The tumor descends very little upon deep inspiration, and does not seem to be much influenced by it; it is slightly movable, but fixed to a degree to the deep parts; it does not give the sense of the feeling of being densely adherent. It would, therefore, seem to be a tumor of the left kidney; the absence of sharp edges and not being influenced by respiration, differentiates it from the spleen, liver and stomach. The absence of fulness behind the kidney in the loin, would exclude peri-nephritic abscess.

Cystoscopic Examination: Otis Cystoscope.—The trigone is congested, due, probably, to instrumentation of the previous day. There were no areas of inflammation or disease to be seen within the bladder. The right ureter opening is normal; a jet of normal colorless urine being ejected from this opening every thirty or forty seconds; there is good sphincteric action. The left ureter opening is also normal in appearance, but the jet of urine is not expelled with the same force or regularity as from the right ureter. There is an appearance of fulness in the region of the left ureter, but no distinct tumefaction.

Using a Brown Cystoscope.—A ureteral catheter was passed into the left ureter as far as the pelvis of the left kidney without meeting any obstruction, passing easily; the bladder was then washed out, and a catheter passed into the bladder to collect the urine from the right kidney. As a result of the collection of the urines of the two kidneys, separately, the following facts were demonstrated:

The right kidney secretes an average of 1⅛ oz. of urine per hour with a specific gravity of 1020; acid reaction; 7 grs. or urea to the ounce of urine; a few granular casts; considerable albumen; a few red blood cells (probably due to wound of the bladder during manipulation); a few epithelial cells; no pus; a few bacteria.

The left kidney secretes on an average 2-3 of an ounce of urine per hour, with a specific gravity of 1024; 8 grs. of urea to the ounce of urine; acid reaction; many red blood cells, which gave a distinct red color to the urine; a few large granular casts; a few epithelial cells; no pus cells; considerable albumin; a few bacteria; no tubercle bacilli. Total amount of urine passed in last 24 hours, 30 oz. Total amount of urea, 400 grs.

Conclusions.—The patient is suffering from a malignant tumor of the left kidney, probably sarcoma. The condition of the right kidney is such as would permit of the removal of the left kidney; the patient's condition makes any major surgical procedure dangerous. If the tumor is not removed, it will surely destroy the patient, and therefore a removal of the tumor is advised, through an abdominal incision, as offering the best chance of benefit to the patient.

SUB-ACUTE GONORRHEAL CYSTITIS SECONDARY TO TUBERCULAR CYSTITIS.

Report of Cystoscopic Examination.—Dr. Paul Pilcher reported a case in a man 38 years of age. Married nine years and has four healthy children. Denies venereal disease, except possibility of urethritis at the age of twelve years; moderate habits.

About twelve years ago began to notice a change in his urine, which appeared thick and whitish in color. Diagnosed as acute cystitis, which was not relieved in spite of different methods of treatment, and grew worse. Increased frequency of urination, often with pain at end of urination.

Eight years ago developed trachoma of both lids of both eyes, which still exists.

Present History.—A strong, well-developed man, weighing 180 pounds. Complains of frequent micturition of a foul-smelling urine. Condition is worse in winter than in summer. Complains of dull aching pain in supra-pubic region and below the scrotum. Some pain especially over region of left kidney. At times urine appears bloody—this may be due to instrumentation. Otherwise he feels perfectly well, has good appetite and digests food well; sleeps well at night, but perspires excessively over the left kidney region day and night. His condition always improves whenever he goes to the country. Never has had fever; never confined to his bed.

Examination.—No evidence of disease of external genitals; no tenderness or tumefaction in region of kidneys; a sound (24 French) passes easily as far as the prostatic urethra, here there seems to be some obstruction. The trigone and base of the bladder are very sensitive. No strictures; no thickening of epididymis. Bladder contains 1 ounce of residual urine. Bladder capacity, 4½ ounces.

At the request of Dr. Delatour, a cystoscopic examination was made, with the following findings:

Cystoscopic Examination reveals the trigone intensely congested; right ureter opening, normal; left ureter opening, moderately swollen and raised up, slightly inflamed, otherwise normal; no areas of ulceration in proximity to either ureter opening; there are one or two areas of fairly normal bladder wall; the remainder of the bladder is the seat of a chronic inflammation affecting equally the vault and base of the bladder; there are a number of points throughout the bladder where the inflammation is more intense, and small ulcerated points, covered by tenacious mucopus are to be seen; these ulcerated areas do not have the appearance of tuberculosis, but are the result of the catarrhal inflammation; at a few of the points throughout the bladder are seen darkly-stained particles, or detritus, attached to the bladder wall; these, when removed and examined microscopically, are seen to be disorganized anatomical elements stained blue, which, when detached from the bladder wall, cause slight erosions as shown by the comparatively numerous red blood cells which are attached to them.

Examination of the Urine demonstrates the typical findings of a chronic catarrhal cystitis, with an alkaline, malodorous, muco-purulent excretion. There were no evidences of acute or chronic nephritis, which could be found in such a urine; there were no casts, and only a moderate amount of albumen, such as would be detected in the presence of so much pus; no tubercle bacilli could be found.

A Culture in Bouillon, taken from a catheterized specimen of urine, showed a pure culture of gonococci.

Remarks.—The chief symptoms are those of a chronic catarrhal cystitis, due to gonorrhœal infection of the bladder. It is more than probable that the underlying disease of the bladder wall is due to a tubercular process, which, however, is quiescent, and may have become obliterated; at all events, is overshadowed by the gonorrhœal infection.

The renal symptoms, of themselves, would not indicate very extensive disease of the kidney, but at the same time, it can be stated with a moderate degree of certainty, that the upper urinary tract shares in the infectious process, and the condition of the left ureter opening would indicate that the left side was more involved than the right. However, the extent of the disease does not contraindicate surgical interference. Inasmuch as the patient does not favor operative relief at present, I would suggest, first, a diet excluding alcohol, and all substances which would irritate the kidney, and a diet composed chiefly of eggs and milk; an outdoor life; benzoate of soda, 10-grain doses three times a day, in order to stop the alkaline fermentation; administration of copaiba and santol oil. If this does not prove serviceable in a month, it should be discontinued, and installations of silver nitrate be given, with continuous irrigation through a permanent catheter. If it were of sufficient importance, tuberculin might be injected to establish the diagnosis.

The most efficacious treatment would be a perineal cystotomy, and local applications, irrigation and drainage that way.

The keynote to the situation probably is to be found in the discovery of the residual urine which, although small in amount, still provides a constant reservoir of infected material which always remains in the bladder. In passing a sound into the bladder, it was found that there was a distinct ridge or bar just at the entrance to the bladder. And further, that the most painful and most intensely inflamed portion of the bladder was the trigone. Therefore it seems logical to advise that the bladder be drained from the perineum.

INFANTILE PARALYSIS.

Dr. J. M. Clayland reported the case of a child three years old, who had fever one night, followed by an infantile paralysis the next morning, which resulted in a total paralysis of the right leg with the exception of the tensor vaginæ femoris, and a partial paralysis of the left leg, the tensor vaginæ femoris retaining its power, as well as the flexors of the leg, extensors of the thigh and the lumbricales and interossei muscles in the foot.

She entered St. Mary's Hospital in September, 1904, with both knees and thighs flexed, the tendo Achilles short and the toes bent. He cut the tensor vaginæ femoris and the tendo Achilles on both sides, stretched the muscles and put the legs up in plaster of paris. After removing the plaster a brace was applied and the child went back to Newfoundland. There was nobody there to keep the brace in repair, and after a few months they were left off, and the flexion recurred.

She returned to St. Mary's Hospital September 19, 1906, and a second time he cut the tensor vaginæ femoris. If a child has no extensor power in the knees, it will fall, but if we put the knees in a hyperextended position, a little behind the straight line, provided the posterior muscles are not affected, the child can stand erect and walk, keeping the knees extended by the hamstring muscles contracting with the foot on the ground. Accordingly, he bent the bones a little above the knees, not making a complete break. This child had never walked except with two crutches and by swinging both feet forward at the same time. He left the child in good condition.

When he went to the hospital the next day he found the child vomiting, with a rapid, almost imperceptible pulse and pinched expression. The child was stimulated. But on the fourth day after the operation the child was in such bad condition, that it looked as if there was no water in its blood. After receiving an intravenous injection of salt solution, the child immediately improved, and the next day it was in good condition. The sixth day after the operation the child again was in bad shape and another intravenous injection of salt solution was given. From this time it got along very nicely.

PERFORATING ULCER OF THE STOMACH.

Dr. J. M. Clayland reported the case of a man, 31 years of age, who had the symptoms of dyspepsia, pain in the stomach and distress and belching extending over a period of two or three years, for which he had various kinds of treatment. For the last two years he felt perfectly well, had an enormous appetite, and was quite an athlete. One Sunday he had a little distress in his stomach, took a dose of castor oil, and vomited. He said when he swallowed it it went down half way in the esophagus and stopped, and then something relaxed before it dropped and the pain commenced. The following Wednesday he came to see Dr. Clayland. He had a severe pain across the upper part of the abdomen, as soon as he would eat or drink. On his way home from business at six in the evening the pain became so acute that he fell to the ground and screamed out that he was dying. He was taken home in a cab and given a hypodermic of morphine. The speaker saw him at eight o'clock, when he had symptoms indicating a perforating ulcer of the stomach. He was vomiting quite large quantities of black fluid, had pain, thirst, retracted abdomen and rapid pulse.

He went to the Brooklyn Hospital, and a perforation about the size of a lead pencil was found on the anterior wall of the stomach. The peritoneal cavity contained gas and a large quantity of the same black bloody fluid. At the suggestion of Dr. Wood it was washed out with saline solution and sewed up. He did very nicely afterward. The second day he commenced to give him fluids by mouth; rectal injections were not retained. On the sixth day he commenced to vomit the same black fluid. He became very anemic. The doctor ordered an intravenous injection of salt solution, and the man improved. He then commenced to give him fluids, first water, then peptonized milk and water, which the patient kept down and appeared to get along nicely until the fourteenth day, when he again was very sick and died suddenly.

The speaker said he mentioned these cases because they both had intravenous injections for a condition due to the fact that neither of them had been able to retain a sufficient amount of fluid, and they both improved after the injection, except that in the last case the patient was moribund when the last injection was given.

The perforation in the stomach was closed by a circular purse string suture, and then Lembert sutures over that. The walls of the ulcer were very thick and were not incised.

GALL-STONE PERFORATING STOMACH.

Dr. Russell S. Fowler stated that he wished to report another case, one of gall-stone trying to perforate into the stomach. The patient was operated on by him at the Methodist Episcopal Hospital, and is now convalescing nicely. The history of the case went back three years, when the woman began to have attacks of gall-bladder pain, pain referred to the shoulder. These attacks continued for a year, and then she had a large hemorrhage from the stomach and also passed blood in the stools. She had never been jaundiced. She had three or four large hemorrhages in the course of several months, and intermittently this pain referred to the shoulder and the gall-bladder region. The hemorrhages continued at intervals of several months and were always profuse. He made a diagnosis of ulcer of the stomach and also gall-stones.

At the operation the speaker found a contracted gall-bladder, which would just admit the tip of the little finger and a mass of adhesions attaching the remains of the gall-bladder to the lesser curvature of the stomach above the pylorus. On incising the adhesions he found a gall-stone lying against the wall of the stomach, having ulcerated through to the muscosa. That was evidently the cause of the hemorrhages and the seat of the trouble. The stone was removed. It was one-half inch in diameter and rough. The sinus tract into the stomach was curetted and then closed with interrupted catgut sutures. The cicatricial mass was not excised on account of its extent. A small rubber tube, packed about with gauze, was used for drainage. The aftercourse was uneventful.

UNUSUAL FRACTURE OF THE UPPER EXTREMITY OF THE HUMERUS.

Dr. Charles H. Goodrich presented a patient 13 years of age, who had sustained a fracture of his left shoulder in the latter part of May, 1906. He saw him first when the injury was three weeks old.

An X-ray picture made by Dr. Eastmond showed distinctly that there was no dislocation, there was no fracture of the anatomical neck, but there were three lines of fracture, one almost completely transverse and two others in the oblique line. The usual treatment for fracture of the upper extremity of the humerus was employed and the result is functionally very satisfactory.

CARCINOMA OF THE UPPER THIRD OF THE ESOPHAGUS.

Dr. William F. Campbell reported the case of a patient 60 years old, whose mother had died of indigestion. He had suffered from indigestion for 25 years. Three months ago he suddenly noticed that there was some difficulty in swallowing, which gradually got worse. He then quit taking solid food and went to a liquid diet, which was not regurgitated. His usual weight was about 155 lbs., and he was reduced to 140 lbs. when the speaker first saw him. He could take cold liquids much better than hot. Dr. Campbell first saw the man in September. A month afterward he saw him again, when the patient suddenly got worse. He was unable to swallow either solids or liquids for a period of 48 hours, and he noticed also that his voice began to change its resonance.

Dr. Burnett, who examined the patient with the laryngoscope, found there was a tumor pressing on the larynx and probably invading it. On the first examination the speaker tried to pass an esophageal bougie, and found that he could not get even the smallest olive through, meeting an obstruction opposite the cricoid cartilage. The same condition prevailed October 1st.

The speaker performed a "Frank" operation, taking a cone out of the stomach beneath the border of the ribs and producing an artificial esophagus. The patient recovered from this operation without any difficulty, and is feeding himself through this opening.

MEDICAL NEWS.

Edited by Clarence Reginald Hyde, A.M., M.D.

Members of the different County Societies of Long Island are requested to furnish news items and personals for this column not later than the twentieth of each month. Kindly mail to the news editor, 126 Joralemon Street, Brooklyn Borough.

⁂

Dr. Delatour's Illness

Dr. H. Beeckman Delatour is ill at his residence with a severe attack of typhoid fever. At present writing his condition is excellent, with best chances for a speedy convalescence.

⁂

Dr. Bierwirth and Dr. Raymond undergo operations

Dr. Julius C. Bierwirth, of 253 Henry Street, and Prof. Joseph H. Raymond, of 145 Willow Street, are both convalescing from an attack of appendicitis, involving appendectomy.

⁂

Removal notice

Dr. John H. Barry announces his removal to 153 Eleventh Street, Long Island City.

⁂

Death of Dr. Trent

Dr. John H. Trent, of 196 Seventeenth Street, this borough, died November 5, of acute lobar pneumonia.

⁂

Dr. L. A.W. Alleman

The many friends of Dr. L. A. Alleman, of Montague Street, will be pleased to know of his complete recovery from his long illness.

⁂

The new House Staff of the German Hospital

Owing to a disagreement between the Superintendent of Nurses of the German Hospital, Miss E. B. Kurtz, and the House Staff, the latter resigned in a body to express their disapproval of her position. Their places were immediately filled. The old staff consisted of Drs. Darbois, Bozenhardt, Valentine, Horseman, Avery and Koehler. The new internes are Dr. W. N. Adkins, House Surgeon; Dr. Baker, House Physician; Dr. Holzman, Ambulance Surgeon; Dr. Henry, Junior House Physician; and Dr. Halpern, Junior House Surgeon.

⁂

The Williamsburgh Medical Society

The physicians of the Eastern District of the Borough of Brooklyn, New York, have formed a new medical society, to be known as the WILLIAMSBURGH MEDICAL SOCIETY. The organization meeting was held on Wednesday, December 5, 1906, at 90 Manhattan Avenue, and forty-eight physicians were enrolled as members. The following officers were elected for the ensuing year:

President, Leon Louria, M.D.

Vice-President, Wm. Linder, M.D.

Corresponding Secretary, M. J. Leavitt, M.D.

Financial Secretary, E. L. Friedman, M.D.

Treasurer, A. Hayman, M.D.

The Society will meet every second Wednesday of the month.

⁂

Dr. J. S. Prout

The telephone number of Dr. J. S. Prout, of 26 Schermerhorn Street, was, by mistake, not printed in the telephone directory. The number is 187 Main. Dr. Prout also calls attention to the fact that at some time he loaned a bound volume (No. XIII) of the *Medical Record* to some member of the County Society. He requests its return. The volume was inscribed with Dr. Prout's name on the inside cover.

⁂

Changes at St. Mark's Hospital

St. Mark's Hospital, of Second Avenue, Manhattan, has sent to all physicians of

Greater New York a card calling attention to an extract from its By-laws, whereby physicians, not members of the hospital staff, may operate on and treat their patients at the hospital, subject to the rules of the hospital. Physicians taking advantage of this by-law must obtain the written consent of the visiting physician or surgeon on duty, to whom they must be known as being competent to operate. Patients must pay for board and accommodation in a private room, except in exceptional cases when they will be permitted to occupy a bed in the wards.

* * *

Opening of the new Woman's Hospital

The new Woman's Hospital at One Hundred and Ninth Street and Amsterdam Avenue was opened for public inspection December 5 and 6. Suitable exercises were held on this occasion, addresses being made by well known public men. Dr. Ralph Tousey, formerly of this borough, has been appointed House Surgeon of the First Surgical Division.

* * *

The new Administration Building of the Long Island College Hospital, opened to patients

The Main or Administration Building of the new Long Island College Hospital was opened December 1 for patients' use. The old main building will soon be demolished, and work begun on the Amity Street pavilion. In this pavilion will be the Skene Memorial Operating Amphitheatre, presented by Mr. George Foster Peabody as a memorial to the late Dr. Alexander J. C. Skene, and costing $75,000.00. The plans of this operating theatre were recently on view in the Kings County Medical Society building, where an opportunity was afforded all the members of the visiting staffs of the hospital to make any suggestions as to the appointments and equipment of this operating pavilion.

December meeting of the Queens-Nassau Medical Society

The programme of the December meeting of the Queens-Nassau Medical Society, held at the Surrogate's Court Room, Jamaica, was as follows: Paper, "Pelvimetry in Obstetrics," and exhibition of a new instrument, Dr. Sidney D. Jacobson, Manhattan; paper, "Enteric Intoxication as a Cause of Nephritis," Dr. Harris A. Houghton, Bayside, L. I.; President's address, "How Can We Make Our Society of Greater Interest and Benefit?" Dr. William J. Burnett, Long Island City.

* * *

Fair of the Guild of the Long Island College Hospital

The recent Fair at the Neswith Mansion on Remsen Street, under the auspices of the Guild of the Long Island College Hospital, cleared twelve hundred dollars above all expenses.

* * *

The "Dudley Memorial"

The "Dudley Memorial," corner of Amity and Henry streets, which was built to accommodate the nurses in training at the Long Island College Hospital, but, since completion three years ago, has been used for private patients during the construction of the new hospital, has been finally turned over to the Training School for occupancy by its nurses. Two additional floors will be added. This is the finest equipped building of its kind in Greater New York, and was donated to the Long Island College Hospital by the late Henry W. Maxwell, who, before his death, was President of the Board of Regents. The building is a memorial to the late Dr. William F. Dudley, who, at the time of his death, was President of the Board of Regents, and to whom the Long Island College Hospital, in its earlier existence, owes much.

LONG ISLAND MEDICAL JOURNAL

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SPECIAL ARTICLES.

SPINAL ANALGESIA.

By **ROBERT H. M. DAWBARN, M.D.,**

NEW YORK CITY,

Professor of Surgery, N. Y. Polyclinic Medical College; Surgeon to City Hospital, New York.

THERE is noticeable a distinct revival of interest in this subject, after an interval when it was almost wholly disused by the surgical profession. This period followed upon the disappointments and ill-results consequent upon defective technique in its employment. Gradually, as these have been recognized and corrected, a fairer appreciation of its merits has obtained; and recently in many quarters favorable reports have been published. Perhaps nobody has used it so many times as Dr. Morton of San Francisco, who three years ago had reported 1,500 cases, with no deaths due to its use, as he claimed. Here in New York probably Dr. W. S. Bainbridge, with a list of about 500 devoid of fatalities fairly attributable to it, probably leads in point of numbers. I have employed it nearly 100 times, with no cause for regret, and I think with but six instances of failure to reach the cerebro-spinal fluid. Abroad, Dr. Bier of Germany has stated* that in 305 personal cases he has not had a single serious result; and has met but 4 per cent. of failures. He recommends it particularly in the elderly and debilitated.

It would be easy to adduce many more notices of a favorable character. As the errors in technique seem by no means invariably recognized and avoided, even yet, I am inclined to attribute failures and misfortunes of various sorts to this fact. Infection is, of course, due to this alone. The blunders cover all points: the anesthetic used, and how to sterilize it: the spinal needle selected, and how to introduce it: the posture of the patient, his preliminary and subsequent treatment.

The Analgesic Agent.

Cocaine, Tropacocaine, Alypin, Stovaine, Eucaine, and several more, have been employed—not forgetting *Epsom Salts,* to which we shall allude further on. For ordinary anesthetic purposes, probably *Tropacocaine* is the best of all; though *Alypin,* from the same botanical source, in doses of 15-20 minims of a 5 per cent. solution is being considerably employed, particularly in Germany. *Tropacocaine* has several advantages. As a rule, it does not cause the nausea and vomiting, and other occasional unpleasant symptoms, resultant from cocaine; it is less a heart-depressant; it can be boiled freely in watery solution without suffering decomposition; it is less than half as toxic as cocaine; and recovery from its effects is more rapid. It is relatively weaker, requiring a dose of nearly, or quite, a grain for a full effect.

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*Berlin Klin. Woch., August 21, 1905.

Cocaine has suffered in repute from the fact that it has not been, in many cases, properly handled in sterilizing. Boiling a solution of it decomposes it into Benzoyl-Ecgonine, Ecgonine, and Cocaine Benzoate; all of them of some value as analgesics, but not so great as is cocaine itself. Hence occasional reports of disappointments in spinal and other anesthetic work. As one instance, coming under my personal knowledge, where an excellent surgeon of wide experience and great influence here in New York had dropped lumbar puncture operating as dangerous, this gentleman gave as his reason that, following the last five instances in which he had employed it, the patients had each developed clonic convulsions. Upon going carefully over all details it became apparent that the cause was his peculiar method of preparing his cocaine. In order to avoid the use of heat, he had (in these five cases only) dissolved it in pure chloroform, and after time for thorough evaporation of this powerful antiseptic, proceeded to use the cocaine thus sterilized. It is plain that some irritant chemical change results, making this method one to be avoided by all means. However, Dr. Bainbridge's favorite plan is to use sulphuric ether in the same way, and he finds this unobjectionable.

In a correspondence which I had some years ago with the chemist of Merck & Co., of Darmstadt, this gentleman informed me that at exactly boiling point at sea level—212° F.—or 100° C.—cocaine decomposes; but not at any heat even in the least fraction lower than this, except by prolonged exposure to it. Since ascertaining this very practical point, I have found it easy to prepare my cocaine, doing it afresh, whether for spinal or subcutaneous usage, as follows: thoroughly boil the water or saline solution in a urinary test-tube. An instant after removal from the alcohol flame and cessation of ebullition the heat will have dropped the least particle below 212.° At once drop in a hypodermic tablet of cocaine of the required dosage to make the percentage desired; and then, after its instantaneous solution, to make assurance doubly sure, continue heating over the flame, not to exceed three to five minutes, but carefully avoiding even the beginning of ebullition. Nothing could be simpler than this, and it is also reliable.

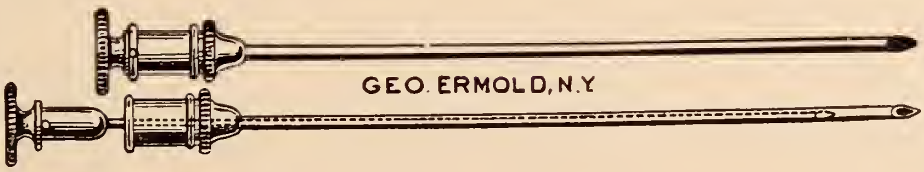
Preparation of Patient to Receive the Analgesic.

It has long been my custom to precede the use of spinal Analgesia, or, indeed, major work under cocaine or tropacocaine anywhere, by giving, an hour beforehand, an ounce to two ounces of whisky by mouth, and a small hypodermic injection of morphine, guarded by atropine. All of these are excellent means of counteracting cocaine in excess. But, in addition, their employment does away with the only really serious objection to *minor* anesthesia (*i. e.,* with patient conscious) for *major* operating. Namely, that the great element of fear is abolished; and with it, one serious cause of shock: the psychic cause. The patient will no longer involuntarily afflict himself by his imagination, meanwhile, which is a very real means of injury and of danger. Under this preparation he goes to the table in a mentally carefree, even cheery, frame of mind—an immense advantage and safeguard, whether for minor or for major work.

Some operators accomplish similar results by other chemicals; such as giving, an hour in advance of the lumbar puncture, hyoscin hydrobrom. Gr. 1-100—1-200 by needle. (This means of producing a quiet, soporose state of mind I employ when, for any reason there is objection, moral or physical, to using alcohol). Also, nitroglycerin, in the same dosage, likewise by needle, is often given. As with alcohol it dilates the cerebral blood-vessels, thus counterbalancing the tendency of cocaine to contract them—the only danger of cocaine in overdosage being a deprivation by this means of sufficient blood in the respiratory centre.

TECHNIQUE.

Still discussing the technique and means used, I would mention that the special needle devised by me a good many years ago, and now sold by Ermold & Co., New York, seems a safeguard to some extent. It is very long—and some earlier failures were due to not recognizing that the needle must be at least four inches long, and longer is better yet—is as slender as compatible with safety, to avoid a risk of after-leakage from a large puncture through the dura; and is ground almost, but not quite, squarely across at its entering end. The needle and its stilet are ground together, as one; and when in place (a small knob on stilet fitting into a slot on the needle base avoids mutual rotation while introducing) this end looks as if solid. This prevents carrying tissues from the flesh traversed into the spinal fluid; and avoidance of the usual mistake of a long sharp needle point has two advantages: (a) it avoids pricking of the nerves composing the canda equina; and (b) it makes surer that all the drug intended to enter the canal shall do so—instead of part escaping within and part without the theca. The long-pointed needle must often succeed in allowing escape of cerebro-spinal fluid while its point is still only partly within the canal, and if, when in this position, the cocaine is injected, a certain amount may well be lost outside—thus accounting for occasional partial failures to anesthetize.



We should always, after freezing the chosen spot of skin with ethyl chloride, make a scalpel puncture through its entire thickness. The needle begins its real journey through the tissues from the bottom of this little cut. In this way all risk of carrying into the canal infection from the presence of microbes invariably denizens of the true skin is avoided. Doubtless, with the almost solid entering end of my needle (ground as stated on its trocar), little tissue indeed could be forced into the crack between them, even if we were to plunge it through the skin. However, from the standpoint of the microscope, this trifling amount could well be enough to harbor quantities of microbes. It is best to take no chances whatever of inviting trouble.

Posture. Still discussing causes of failure, the posture of the patient is important. This should be the "scorcher's position," the name explaining itself. Only in this posture can the lumbar spines be clearly felt in those who are fleshy. The scalpel-cut is placed on a level with one of these spines, perhaps a half-inch away from the median line of the back—in order to avoid the dense inter- and supraspinous ligaments. The needle is directed sharply upward as well as inward toward the median line, in order to enter the foramen next above. Each of these openings is about the size of the base of a lead pencil, and should be found with little difficulty, if the operator has the educated sense of touch. It makes no difference of importance which of these openings in the lumbar region is chosen—usually the second or third, perhaps. There is no spinal cord in the lumbar region, it will be remembered, unless one dignifies by this name its terminal thread—the filum terminale; and even this ends at the level of the lower edge of the first lumbar vertebra.

Occasionally the fluid does not run out freely, though the needle is in place; when, if the patient be directed to cough vigorously, this helps the flow. Commonly it would seem wise to withdraw about the same amount of the fluid as it is intended to inject of the drug in solution.' A desirable technique used by some is to draw into a glass syringe, containing the sterilized tropacocaine in powder, a sufficient amount of cerebro-spinal fluid, and re-inject this as soon as it is seen that the powder is dissolved.

EXTENT OF ANALGESIA.

Although usually this is limited above by the waist line, roughly speaking, yet sometimes it is far more extensive. Repeatedly, in using both cocaine and tropacocaine, I have observed complete insensibility to pain everywhere, even the scalp—except the face, which seems rather obdurate. To accomplish such analgesia at a high level two steps seem helpful, namely: *to inject the fluid quite swiftly*—to make a current, carrying it thus up along the cord; and also, to *place the patient* at once thereafter *with the foot of the table elevated,* and his head quite low, for as long as this is easily tolerated.

Commonly, with tropacocaine and cocaine, the analgesia lasts from an hour to two hours: the exceptions however, in both directions are not rare. Usually operation may be begun without pain within a quarter-hour after injection, often in less time.

MAGNESIUM SULPHATE.

It is a matter of great interest in studying this topic, to consider the experimental work of Drs. Meltzer and Haubold, of this city, published about a year ago. These gentlemen, starting with a hypothesis that all the salts of magnesium are nerve depressants, tried them upon animals, particularly magnesium sulphate (Epsom salts), by lumbar puncture. It was shown that no ill effect resulted, as to heart or vessels, in whatever dosage; that there were both sensory and motor paralysis, lasting in the doses they used, often 24-48 hours, the patient being held in deep sleep, meanwhile. That if it killed at all, it was by failure of respiration only; and this could be prevented, when in excessive dosage, by re-puncture of the spinal canal and washing out the salt; or else by artificial respiration kept up long enough to allow time for elimination by the kidneys. This drug has been tried upon fourteen human patients; and using by lumbar puncture, 1 c.c. of a 25 per cent. solution in water, to each 25 lbs. of body weight. These cases were studied by Dr. Blake, of this city, in the May number of "Surgery, Gynecology, and Obstetrics."

About that time I had a hip-joint amputation in a cachectic old lady, suffering from sarcoma of the thighbone. I used tropacocaine spinal anesthesia, which also produced nerve-blocking against shock—thus preventing the blow at the vaso-tonic centre from being delivered, so long as the divided nerves remained cocainized. This plan, as all know, has been much used of late, to prevent shock. In this instance the old lady left the table after her amputation with a pulse of about 80, and not a sign of shock. However, about two hours later, when the tropacocaine analgesia ended, the nerve-blocking ceased, and she began to develop all the usual signs of shock. She died of this—and the funeral had been postponed about two hours by the preventive means used—that was all.

It then occurred to me that if we could find some drug, the effects of which, in nerve-blocking, would be considerably more lasting than those of cocaine or similar chemicals—say 24 to 36 hours at least—we should thus give nature a much better opportunity to prepare a defense against the blow, when at last this should be delivered, and might thus save lives otherwise hopeless of recovery. Thinking of Meltzer's Epsom salts spinal analgesia, and its slow beginning, averaging one to two hours before noticeable effect, and long continuance, I determined to try it, in about half his dosage, to avoid danger, and combining tropacocaine in the same solution; hoping that the prompt analgesia and nerve-blocking from this drug would continue without interruption into the same effects from the slower and more lasting Epsom salts.

I have, within the past month, tried this plan in two instances requiring amputation of the thigh, through its middle, for sepsis and emaciation from compound fracture of the lower leg of long duration. Two cases are too few to be of much value in reaching a conclusion, to be sure; but both of them were in so feeble a state as to invite shock from the most trivial operation. The first was not only cachectic but emaciated, so that he weighed but 92 pounds. The second was an old man in his seventy-seventh year, very septic after seven months' profuse suppuration from badly infected compound fracture of the lower leg; and had been unable even to sit up in bed for seven months.

In both cases I used tropacocaine *plus* about one-half Meltzer's dosage as given above. In both instances the operation was painless. The first of these cases recovered smoothly without a sign of shock, and will shortly leave the City Hospital. The second lived 46 hours, without shock, dying of suppression of urine. The autopsy showed advanced kidney disease, hobnailed liver, degenerated heart muscle, and general arteriosclerosis. But, as for prevention of shock, it would seem that this point was as effectively demonstrated as if he had lived a year.

In a word, it would seem that we are encouraged to try further work along this line. The cases thus briefly mentioned I shall publish in full detail shortly, in "Surgery, Gynecology and Obstetrics."

In conclusion of this brief article, from which necessarily much is omitted which I could wish to include, we should remember that a knowledge of the proper technique of lumbar puncture is important for all doctors to acquire, quite aside from the question of operating by this means, as to analgesia, or of its use in nerve-blocking against shock. For there are several important diagnoses which demand ability to withdraw, with safety to the patient, cerebro-spinal fluid: for example, cerebro-spinal meningitis, in which disease it will no longer be found clear and watery, but resembling diluted milk, and containing the diplococcus of this disease; or again, in fracture at the base of the skull, often obscure, in absence of ear or eye symptoms, the finding of blood-tinged fluid on lumbar puncture is almost pathognomonic. The treatment of tetanus employs this as one means of introduction of anti-tetanic serum; and obstetricians have sometimes used this route to accomplish painless labor, and may do so oftener, if safe analgesia more lasting than that from cocaine or its congeners can be obtained. In a word, lumbar puncture unquestionably has a future in the profession.

It will be noted that *Analgesia* has been substituted for the word *Anesthesia* throughout this article. There has been some criticism upon the part of writers demanding, as is proper, exactitude in nomenclature, and claiming that true anesthesia is not regularly obtained by the use of lumbar puncture, using the drugs commonly employed.

It is not at all rare for ordinary sensibility to be retained in considerable degree; also muscle-sense and power to estimate weight, etc., while at the same time a cutting operation in the lower half of the patient would be devoid of pain. This retention of some degree at least of tactile sensibility has often been recognized, and as the surgeon did not test the question of abolition of pain, it has been assumed, incorrectly, that the operation contemplated would cause suffering—and such an instance recorded unjustly as a failure of this method.

Consequently it would seem best to use the term *analgesia* as to the result usually accomplished. If pain is absent, it is indifferent, practically, whether or not various other modifications of common sensation are retained.

THE TECHNIQUE OF TUBATION OF THE PHARYNX TO FACILITATE ADMINISTRATION OF ANESTHETICS.

By JUNIUS H. McHENRY, M.D.,

CLEVELAND, OHIO.

IN operations upon the mouth and face much has been written upon anesthetics to facilitate their administration and to lessen the danger of blood inhalation and resulting pneumonia. The tubage of the pharynx as described by Dr. Crile in the *Annals of Surgery*[1] and more minutely by me, in a short article on the "Technique of tubation of the pharynx to facilitate the administration of anesthetics and to prevent inhalation of blood in mouth and face operations" which appeared in *Surgery, Gynecology and Obstetrics.*[2]

In this paper I attempted to show the importance of the method in all mouth and face operations. Since then, some points of improved technique have suggested themselves and I believe the method has met with sufficient approval to warrant a repetition at even so early a date and at the same time to present these changes.

The steps in the technique with the changes are as follows:

1. The patient is reduced to complete surgical anesthesia in the usual way.

2. The pharynx is then cleansed with a small gauze sponge held by a pair of long forceps and then cocainized with one-tenth per cent. solution cocaine.

3. Two rubber tubes as large in calibre as will pass, thereby fitting snugly, cut on the bias and fenestrated laterally near the ends, are inserted into and through the nares as far back as the epiglottis, which will be felt as an obstruction to further passage of the tubes.

4. The mouth is then widely opened, and the tongue drawn well forward and out.

5. With one good sized gauze sponge the entire pharynx is then packed, while making traction upon the tongue, as far back as the tubes. This forms, when in position and properly packed, an air-chamber or space in which the tubes and larynx communicate.

6. The tubes having been inserted as directed in 3, are now severed at equal distances from the nose.

7. The anesthetist now listens carefully to ascertain if the patient is breathing through the tubes, if not the gauze packing in the pharynx is too deep, allowing no air space and should, therefore, be repacked until rhythmical breathing is heard through the tubes.

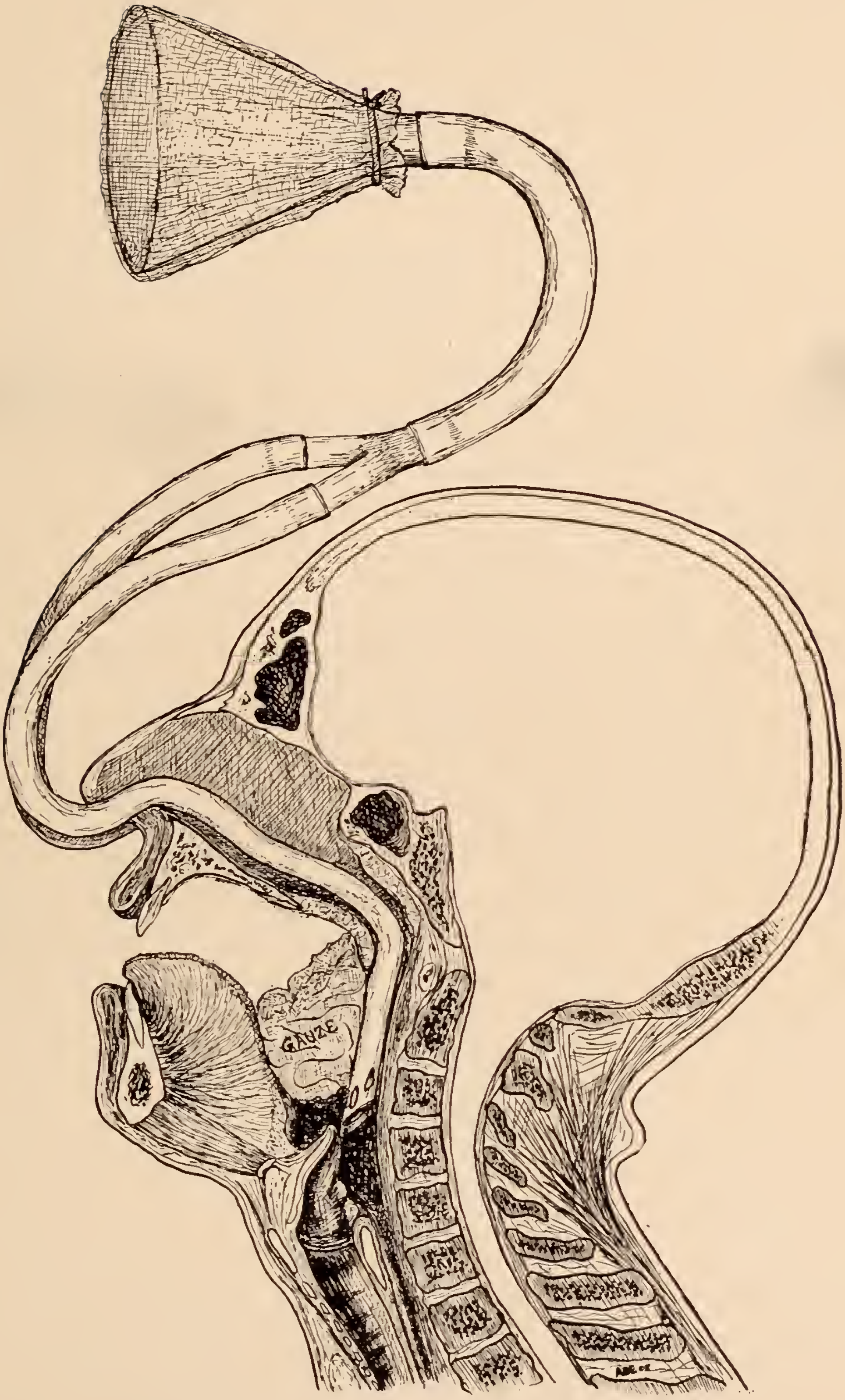
8. The tubes are now joined by a "Y"-shaped hard rubber tube to which is attached, by means of another rubber tubing, a hard rubber funnel covered with two to four thicknesses of gauze (see cut).

9. The anesthetic, chloroform or ether, is then administered by pouring it upon the gauze funnel.

If the various steps are carefully followed it will be found to be an easy procedure.

Operations which previously have been dangerous on account of aspiration, pneumonia will be found minimized to the degree where aspiration of blood is practically impossible.

Vomiting, a positive result of incomplete and uneven anesthesia and a source of great annoyance to the operator, and danger from aspiration to the patient, is also impossible. The mucus forming in the throat is absorbed by the gauze sponge, which also prevents spraying over the operative field and escape of blood and mucus into the air passage. Further the gauze plug has a haemostatic function on account of its pressure on the base of the tongue, controlling, to a great extent, the hemorrhage, except in op-

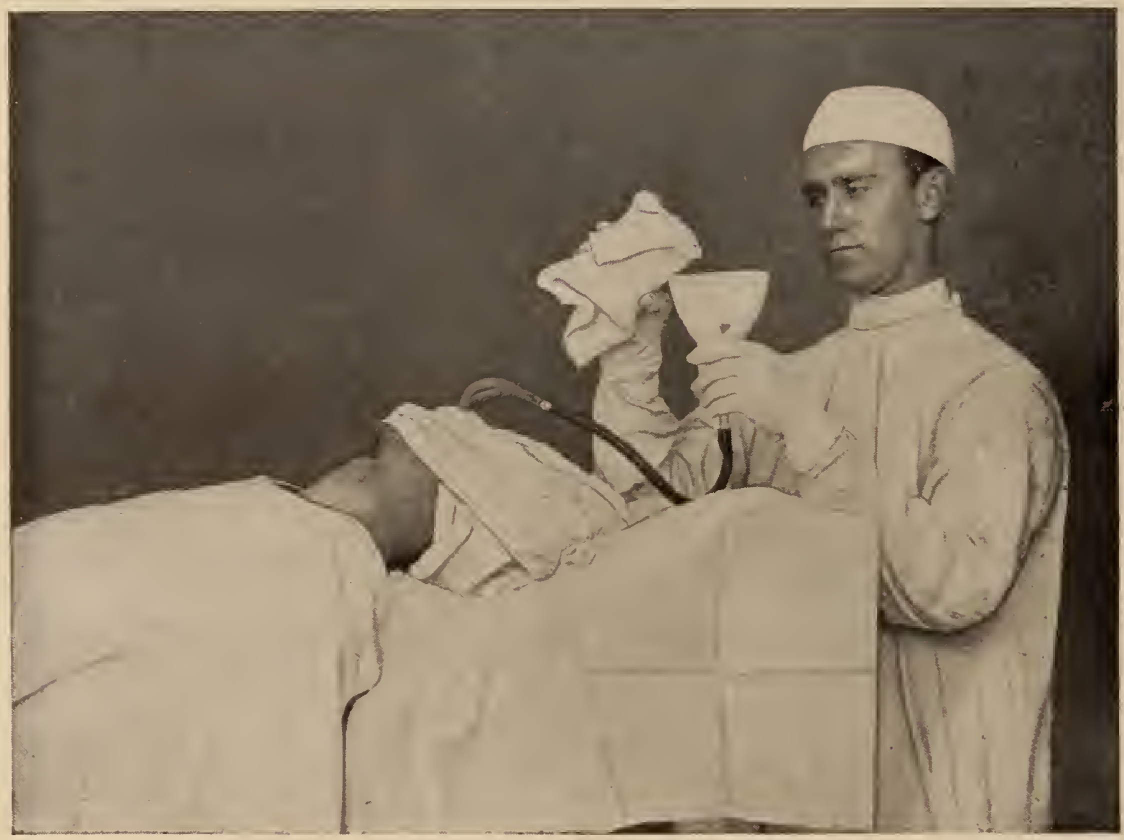


TUBAGE OF THE PHARYNX FOR USE IN ANESTHESIA.

erations where the lingual arteries are severed. The head may be placed in any position most advantageous to the operative technique regardless of resultant hemorrhage. The position of the anesthetist, the omission of the cone and apparatus, are all removed from the field of operation, thereby avoiding all disagreeable and vexatious delays; this in itself is of great importance to the operative technique.

The surgeon will readily see the advantage and assistance this method will be to him in all mouth operations, particularly those upon cleft palate. Its importance will accordingly be appreciated not only by the surgeon but certainly by the anesthetist.

The points I wish to emphasize in this paper which may not have been made clear in either the earlier article by Dr. Crile or myself are (a) the necessity of using considerable gauze in first packing the pharynx (step 5 in technique), so as to almost fill the space, then subsequent loose packing of remainder of the piece. *Never use but the one piece of gauze.* By lightly packing at first, and then tightly, the "air-chamber" is filled with the end of the gauze strip, so that the air from the larynx is obstructed from the tubes. (b) The lateral fenestration of the tubes near their ends, as the air space is greater from side to side than from before backwards. (c) the plane of the bias-cut end should be downward and backwards—(d) the change from glass "Y" connection tube and funnel to that of hard rubber for obvious reasons.



By courtesy of The Annals of Surgery.

TUBAGE OF THE PHARYNX FOR USE IN ANESTHESIA.

CONCLUSIONS.

The advantages to be gained by the tubation method are, therefore, as follows:

1. Complete, uniform and continuous anesthesia.

2. No vomiting, coughing, or spraying of blood over the field of operation.

3. Aspiration of blood and mucus impossible.

4. Partial control of hemorrhage.

5. Position of head optional to operative technique.

6. No interference or delay from anesthetist.

MAJOR SURGERY WITH MINOR ANESTHESIA.

By JOHN A. BODINE, M.D.,

NEW YORK, N. Y.

TO claim your interest in the trite title of this paper, I shall make a statement as a foreword: "From twenty-five to thirty per cent. of major surgery can be performed *painlessly* under the local analgesic effect of cocaine." It follows as a corollary that this surgery is more scientifically, consequently better done, under local analgesia than under cerebral narcosis. The fact that it lessens danger to life places this statement beyond peradventure of criticism. If a given operation can be performed as carefully, thoroughly, extensively and painlessly under local analgesia as under general anesthesia, it precludes possibility of argument that this is the method to be selected. None of the local analgesics other than cocaine will be considered, for the reason that this drug has proven faultless in the manner of use and scope of work for which I shall recommend it. Matas, in a contribution along this line of argument takes occasion to express his conviction that "all the dangers of general anesthesia, with the classical anesthetics, chloroform and ether, whether alone or in combination with other agents, are not sufficiently appreciated, and that the present indications for their use are far in excess of the actual demands of practice. The average surgeon of to-day considers general narcosis an essential feature of every major operation, while for minor operations—that is, those without a death rate, he invariably uses local analgesia. He will not hesitate to open an abscess, remove an ingrown toenail, amputate a finger, or even curette a carbuncle under local analgesia, but will smile with incredulity at the suggestion of the propriety of using cocaine as the anesthetic in an arm or leg amputation." (Matas.) Take, for instance, the suture of a fractured patella, an operation from anatomical reasons, which lends itself peculairly to this method of local analgesia. We have but to incise the skin over the front of the knee, which is one of the most insensitive areas of the body, and without the division of a nerve trunk or blood vessel, we expose the fracture. If the operation is postponed for two or three days after the injury, the broken surfaces of bone have ceased to bleed and the blood between the fragments has firmly clotted, so that a stream of malt solution will turn it out in one clot. We may then pick up the interposed fragments of the fibrous capsule, trim with scissors and suture them to bring the bone fragments in contact. There remains but to suture the skin. This operation we have done in our clinic over twenty times without any pain whatever to the patient, and the operation is technically so simple as to be accomplished without touching the wound with the fingers, thus insuring primary healing.

Contrasting this operation with that of curetting the carbuncle, I should reverse the usual method, using general anesthesia to the carbuncle, local anesthesia for the fractured patella.

Local cocaine anesthesia has had an unfortunate experience in its evolution, and it is not long since it was discredited in consequence of frequent and alarming fatalities resulting from overdose and imperfections of the technic. "The general anesthetic will remain with us, if not in the present form, in some other, in spite of its dangers and disadvantages, because unconsciousness in surgical operations is a desideratum if only to abolish the psychic pain which at times cannot be palliated by the most complete local anesthesia." (Matas.) Without being tiresomely academical in the study of this subject, it seems to me wise for a moment to reproduce Matas' study of the modern technic of local and regional anesthesia in surgical practice.

"The discovery that anesthesia of the skin or derm proper by intradermal infiltration of cocaine as distinguished from the hypodermal is the key to success in local anesthesia." And then the "discovery that tissues are sensitive to the anesthetic action of extremely dilute solutions of cocaine (1-20000, Schleich) increased its field of usefulness in proving that it can be used effectively in exceedingly and positively non-toxic doses. To Schleich belongs the great credit of reducing the strength of the surgical solution to 1-5 and 1-10 of 1 per cent.," and it may now be stated as a fact that in no instance in the intra or hypodermic use of cocaine solutions is it necessary to use a strength greater than 1-500. It is, of course, elementary but necessary, I think, to recall that the thorough edematization of the tissues with physiologic isotomic solutions of sodium chloride is in itself an anesthetic agent.

The infiltration of the tissues with saline solution does not produce a sufficient anesthesia to be practical, but increases the effectiveness of dilute solutions of cocaine. Many years ago Halstede and Dawbarn both called attention to the anesthetic value of pure water infiltration and proved that much simple work could be done painlessly with this agent. In 1895 J. Leonard Corning announced the fact that the action of cocaine could be indefinitely prolonged by elastic constriction of the anesthetized area. This constriction not only prolonged and increased the effectiveness of the anesthesia, but it diminished the dangers of toxic doses of the drug entering the circulation too rapidly. As the capstone in the evolution of this method came the discovery that the injection of a nerve trunk with cocaine solution was first practiced for surgical purposes by Dr. Geo. W. Crile, of Cleveland, Ohio, who amputated the leg painlessly after injecting the sciatic and anterior crural nerve, on May 18, 1897. The same principle has been admirably utilized by Dr. Harvey Cushing and others for anesthetizing the inguinal region in the radical cure of hernia. The greater appreciation in recent years of a fact in physiology that all the tissues and organs of the body, with the notable exception of the capillary layer of the skin and nerves themselves, are under normal conditions practically devoid of sensibility, and that if the sensation of the derm and the nerves that supply a given region is subdued by an artificial anesthetic, the sensibility of the tissues can be practically disregarded from an operative point of view.

On the other hand, the importance of the psychic pain in the course of the operation is not to be underestimated. And as this cannot be controlled by local anesthetic agencies, it remains a serious obstacle which in major surgery frequently compels recourse to general or cerebral anesthetics in spite of the total abolition of sensation in the field of operation.

As a result of the practical application of the principles I have enumerated, the technic of local and regional anesthesia has been gradually evolved into a method or variety of methods which for study we may divide into two.

1. LOCAL INFILTRATION METHOD.—By infiltration we mean the production of an artificial edema of the tissues with the object of diminishing or suppressing their sensibility. Plain or distilled water, when injected in sufficient quantity to edematize the papillary layer of the skin and subjacent tissue will suffice to produce a transient but painful anesthesia of the edematized area. This is the *anesthesis dolorosa* of Liebrich. The pain is caused by imbibitory swelling of the cells. Solutions of the same specific gravity and the same freezing point as the normal tissue fluids are the only ones which can be employed without causing pain from osmotic disturbances and are called isotonic solutions. More concentrated solutions will draw water from the tissues and cause pain; weaker solutions cause the tissues to swell and are similar in their effects, and the nearer they approach clear water the greater the pain. An indifferent fluid iso-

osmotic with the blood produces neither pain nor anesthesia. A warm osmotically and chemically indifferent fluid is the medium which when injected produces no physical effects per se, and leaves the specific action of the cocaine to act alone. Such a solution we have in the 6-10 of 1 per cent. normal salt solution. A knowledge of these facts is of practical interest, because by the use of isotonic or physiological salt solutions the tissues are not injured, and they recover more promptly and without irritation from the effects of the analgesic agent. Hence we make use of salt in our clinic in all local anesthetic solutions. Schleich, who is the father of the infiltration method, was the first to call attention to the value of salt in preventing the pain caused by the use of plain water infiltration, and while many of his conclusions have been more or less successfully contradicted, the fact remains that his first appreciation of the remarkable sensitiveness of the tissues to such weak solutions of cocaine as 1-20,000, revolutionized the technic of local anesthesia and gave new impetus to this mode of practice. As pointed out by Schleich, the factors that enter into the causation of the anesthesia are, *first,* the ischemia of the tissues and partial stasis caused by the pressure exercised by the injected fluid on the capillaries and blood vessels, *second,* the compression of the terminal nerve element from the same cause, *third,* the increased temperature of the infiltrated area caused by using warm solutions. These purely physical conditions are undoubtedly of great importance in favoring and intensifying the action of the cocaine, and upon the thoroughness with which they are brought to play largely depends the success of the the infiltration method. It has lately been contended by some that the cocaine can be left out of these solutions without diminishing the analgesic effect of the solution, but my personal experience has convinced me that were the cocaine excluded from them they would cease to be of value as practical surgical anesthetics. On the other hand, we must recognize that without the process of edematization weak solutions of cocaine would become practically worthless.

From what I have said it is evident that there are two efficient factors concerned in the production of infiltration anesthesia. One is the physical effect of the infiltration from pressure, the other is the chemical action of the drug employed.

2. NEURAL ANESTHESIA—This term signifies that a region or area which embraces the prospective field of operation is to be anesthetized rather than the field itself. In this method the operator, after a preliminary infiltration of the skin, aims at the cocainization of the deep nerve fibers which supply the field of operation. The Cocainization of the nerves which supply the region may be done, as is usually the case in the surgery of the extremities, at a distance from the field of operation; or the nerve trunks may be injected directly as they are exposed in the region in the course of operation, as in the method of cocainizing the inguinal region for the radical cure of hernia.

So far this paper is more or less a verbatim abstract from Dr. Rudolph Matas' article (Local and Regional Anesthesia with Cocain and other Analgesic Drugs, including the Subarachnoid method, as applied in general surgical practice) to whom I apologize for taking this liberty.

My personal experience in operations on the head and neck under local anesthesia embraces quite a number and while this experience has not been classified, so as to permit me to give it in detail, I feel safe in the assertion that fully 25 per cent. of the major surgery in this region can be painlessly done with local anesthesia. Excision of the lower lip for epithelioma, and of part of the tongue for the same disease, is plainly within the list of feasible operations. In fact, the lower lip can be removed with actual cautery without pain. Tracheotomy, ligation of the carotid arteries, removal of cysts of the neck, and goitre, should all be done by local anesthesia, by preference. While on the other hand, tubercular glands, if at all extensive, require general narcosis. For removal or resection of a rib to drain empyema, local anesthesia can be depended upon to make the operation painless. Here in addition to infiltration of skin and surrounding tissues we aim to catch the intercostal nerve as it runs along the lower border of the rib. Amputation of the upper extremity, especially if the point of amputation is above the elbow, can be painlessly and efficiency completed with local anesthesia. My experience embraces three of these amputations, none of which complained of any pain during the entire operation. In these amputations we employ three of the principles mentioned in the academical part of my paper. First, the skin is anesthetized along the lines of the skin for flap, and after incision the median and ulnar nerve are readily found and cocained. The muscles incised and retracted so as to expose the musculo-spiral nerve, and after cocanization of this nerve trunk the bone can be sawn without any pain whatsoever. The constricting tourniquet prolongs the anesthesia indefinitely, according to the teaching of Corning. A case in point, John Clef, with emphysematous gangrene to the elbow, was operated upon at St. John's Hospital, Long Island, last week. Less than ½ grain of cocaine was used in removing the arm. Another operation on the upper extremity with fracture of the olecranon, which is peculiarly adapted to suture like the patella, under local anesthesia.

In major operations upon the lower extremities my experience embraces three amputations above the knee, one below the knee. These amputations were performed under local anesthesia not as a matter of choice, but because general anesthesia was contradicted. The amputation below the knee is more difficult to accomplish without pain than amputation above the knee. It is only a matter of a few minutes to expose the sciatic nerve and the anterior crural nerve above the point of amputation, and to inject into the substance of these nerves a few minims of 1-500 solution of cocaine. By the time these two incisions have been sutured and the skin infiltrated along the line of flap the amputation can be performed without pain to patient. An advantage in these amputations is that no shock attends the operation, it having been shown by Crile to be impossible to send a shock impulse along a nerve trunk which has been "blocked" by cocaine injection.

Case.—Hoffman, aged 50, osteomyelitis and cellulitis of the leg following a compound fracture. Urine heavily loaded with sugar. He was distinctly septic, with pulse 120. Amputation of the thigh under local anesthesia. Not a single complaint of pain from patient during the operation, and as evidence of the truth of Dr. Crile's statement, his pulse was slower at the end than at the beginning of the amputation.

This great discovery of Crile's of "nerve-blocking" makes it quite possible to do painlessly or nearly so the entire surgery of the upper and lower extremity under local anesthesia. At present general anesthesia in this particular surgery is the anesthetic of choice, but I see no reason why excision of the knee joint for tuberculosis, osteotomy for bow-legs and knock-knees, partial foot-amputations, or any other major surgery on the extremity may not be comfortably and carefully performed under local anesthesia, when the least contraindication for cerebral narcosis exists.

This method of anesthesia is peculiarly effective and satisfactory in genito-urinary surgery. Castration, open operation for varicocele, radical operation for hydrocele, stone in the bladder by supra-pubic extraction, I have done repeatedly without pain to patient. Prostatectomy, however, does not fall in this list. There is an operation so useful in its effects and so frequently performed that can be done wholly without pain by local infiltration, that I think it should be more widely known and practiced. I refer to lacerated perineum and cervix. If the cocaine solution be properly introduced the only complaint from the patient will be the irksome-ness from the position. An illustrative case is that of Dr. Y., a practicing physician, with extensive lacerated perineum and cervix. She was operated upon at St. John's Hospital, and at completion of this operation expressed a desire to have the heads of the metatarsal bones exsected for bunion.

Local anesthesia, however, finds a contracted field for usefulness in abdominal operations. Appendicitis, gall-bladder operations, suprapubic operations on the uterus, tubes and ovaries are not suitable for this method. Ovarian cystomata I have removed once or twice where contra-indication existed to ether, but wherever the parietal peritoneum is largely in evidence the operation will be unsatisfactory. Where an exploratory laparotomy for diagnosis is indicated, local anesthesia is usually all-sufficient, but any extended manipulation of the uterus of abdominal viscera demands general anesthesia. Much has been written lately about rectal surgery under local anesthesia, but its usefulness here is contracted in my experience if the test of its efficiency is painlessness. Many cases of hemorrhoids are suitable, and many more are not, if painless be the test. The rectum is the most sensitive part of the human body, and in all my experience with local anesthesia this particular area has proved the least satisfactory. One operation to which I wish to call your particular attention, and about which I feel justified in being dogmatic, is that of the radical cure of inguinal hernia. My experience embraces more than 400 cases. and I state with positiveness that any case of inguinal hernia, whether strangulated or not, whether large or small, complicated or simple, can be performed with a fractional part of a grain of cocaine, often without a single twinge of pain to the patient. This anesthetic is so peculiarly suited to this particular operation that none other should be considered. I present to you to-night two out of the 400 cases mentioned. They show the extremes of age to which this method is applicable. The lad here shown is ten years of age. He never flinched nor moved nor complained during the entire operation. The other patient is at the opposite pole of life, some eighty years of age. A large strangulated hernia was operated upon a month ago, without pain or complaint during its performance.

Just here it seems wise to speak of strangulated hernia. The death rate under local anesthesia will be materially lessened by reason of the fact that the additional shock of general narcosis is obviated. My experience embraces about 15 cases. When the constriction is relieved and the emprisoned loop of intestines is *drawn* on to the abdomen, hot towels may be applied for one, two or more hours, if necessary, to improve the circulation in the bowel or to ascertain with certainty whether it is dead and should be exsected. To any surgeon the overwhelming advantage of this statement is obvious. If the gut is dead, exsection can be performed without additional cocaine. A case in point, John Keegan, Polyclinic Hospital, October 10th, strangulated inguinal hernia, four days' standing. Fecal vomiting, with the usual attending shock. However, it was that type of shock and sepsis in which the patient's perceptive faculties were additionally acute. Upon exposure of the gut it was found perforated, and 11 inches of the gut were exsected, the ends sutured by overhand suture, without any expression of pain from the patient. Furthermore, the patient's pulse at the beginning of operation was 140; at the termination of operation it was stronger and had slowed to 110. Contrast this in your mind with this patient's condition at the end of an hour under general narcosis.

To sum up my experience of local anesthesia in this particular operation, I will say that in not a single instance has a single patient moved hand or foot during the operation. If you will consider for a moment the regional restriction of this operation, the superficial position of the operative area, that neither nerve trunk nor sizable blood vessel is encountered in the skin or subcutaneous fascia, and that upon the aponeurosis of the external oblique lie the inguinal branch of the ileo-inguinal and hypo-gastric division of the ileo-hypo-gastric nerve which, when found and cocainized, abolish the pain-sensation in the entire operative field, you will readily see why local anesthesia is the anesthetic of choice in this operation.

In no case of inguinal hernia has it been necessary to exceed one grain of the drug, and it is an obvious proposition which none will gainsay that intermittent injections throughout the period of an hour, amounting in all to a fractional part of one grain is well within the limits of absolute safety. It is quite probable that fewer wounds would suppurate under local anesthesia. The very nature of the anesthetic compels gentle handling of the patient, and this lack of bruising leaves the wound in the best possible condition to resist infection, and primary healing in herniotomy is essential to cure.

If the skin is properly infiltrated with 1-500 solution it will remain completely anesthetized for one hour and a half, but to anesthetize the skin the point of the needle must lie just under the scarf epithelium. It is in this plane of the skin that the highly differentiated end-organs of the sensory nerves are situated. If the needle point lies true, it can be seen from the surface. With this anesthesia one may painlessly go through skin, superficial and deep fascias, and incise the external oblique muscle. The two nerves mentioned then appear in sight, and after cocainization the operation is completed without additional anesthesia, except for ligation of the sac.

Just a few words embracing certain fundamental facts about cocaine solution and its antidote, and I shall bring this particularly, though I hope not disagreeably, personal paper to a close. The solution must be freshly made, otherwise the wound will suppurate. In 24 hours a cocaine solution will develop a fungus and is potentially septic. In 48 hours it is distinctly so, and will produce suppuration. In no instance in the use of this solution with a hypodermic needle is a strength greater than 1-500 needed, and for all injections beneath the skin 1-1,000 is sufficiently strong. It should be used warm, at body temperature, as this increases the effectiveness of the analgesia. It should be made in normal salt solution instead of distilled water, so as to make it isotonic with the blood serum. If the solution is used in distilled water, it will cause swelling of the cells from imbibition, whereas a solution of salt heavier than the blood serum will abstract the water and cause shrinking of the tissues according to the law of osmosis. A solution of cocaine 1-500 in normal salt solution obviates the difficulty and interferes not one whit with the well-being of the wound. In proof of this statement, 400 cases of herniotomy without a single suppuration would seem proof conclusive. We have come to look upon morphine as a safe and effcient antidote to cocaine symptoms, and in every instance it is given to the patient a few minutes before beginning the operation.

It is our belief that fewer recurrences of the hernia after operation will occur, if local anesthesia is used, the reason being that the structural integrity of the nerve supplying motor and nutritional influences to the area is scrupulously respected. Division of the ileo-inguinal nerve in operations for varicocele causes atrophy of the cremaster muscle with relaxation of the scrotum. This is a fundamental fact, wherever a nerve is divided, atrophy of the structures it supplies inexorably follows. So it would seem a logical conclusion that division of the ileo-inguinal and hypogastric nerves so often done under general anesthesia in the performance of the radical cure for hernia would be followed by an atrophy and thinning of the various structures sewn together for the cure of this lesion, with a consequent recurrence of the protrusion.

PAPERS BY MEMBERS OF THE LONG ISLAND SOCIETY OF ANESTHETISTS.

CONDITIONS GOVERNING THE SELECTION OF A GENERAL ANESTHETIC.

WILLIAM C. WOOLSEY,

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CONSIDERATION of this subject is not undertaken, on account of any lack of literature upon it, but because despite that abundance of literature, many of us still insist upon being mono-therapists in this particular line of work. The ether enthusiast insists upon using ether under all circumstances of patient and surgery. The N_2O_2 adherent expects too much of his ever safe gas and so on.

The particular point of view intended for this reading is:

a. That the production of general narcosis under all conditions of body and mind with the same anesthetic agent, is obviously not doing justice to the art, nor taking advantage of the knowledge we possess, gleaned of much investigation and labor.

b. That each pathological condition, as well as each particular patient, presents certain special indications for selecting some particular anesthetic agent in preference to some other.

c. That any man controlling the administration of an anesthetic, should be familiar with those special indications just as surely and thoroughly as he should be with the facts governing the intelligent use of any drug in preference to some other, for example, digitalis instead of strychnine as directed toward improvement of cardiac function.

d. That the improvement and progress of the art of administering an anesthetic is no less due to the selection of the proper and appropriate agent than to the adoption of some particular method of administration.

Bearing these facts in mind and appreciating the necessity of making more safe the anesthetic state and less uncomfortable the induction of it, we cannot, at this time, advocate for either student or anesthetist, the learning of the use of one narcotic agent and the administration of that skillfully and always, nor can we be satisfied with the present methods of instruction that student in college or interne in hospital receives, excepting in the few instances.

Fortunately, in the vast majority of operations all of the recognized methods of anesthesia are comparatively safe, but nevertheless in a certain number, and by no means a small number, the life of the patient depends upon the proper choice of the anesthetic, as well as the technique of its administration.

To many the warning against the use of chloroform in reducing dislocations of major articulations is not necessary, neither against the use of ether in the presence of some catarrhal condition of the bronchial mucous membrane, yet to a great number of ultra-enthusiasts for some one agent of anesthesis, such warning is necessary, as a tendency exists to expect one anesthetic equal to all conditions of patient and surgical work, regardless of special indications.

This paper fails in its mission if it falls short of rousing into special activity the knowledge you already possess or perchance at this time acquire, relative to the careful consideration of the particular patient in hand, the surgical work to be accomplished, the extraneous circumstances necessarily present and applicable, when selecting an anesthetic.

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* Read before the Associated Physicians of Long Island, in June 1906.

Being called upon to go out of town for the purpose of administering an anesthetic to an extremely sensitive and fearful woman I was informed on my arrival, by the physician in attendance, that my subject would take nothing but chloroform, and that only when given with a rapidity suiting herself. After a combined mental and physical struggle lasting twenty minutes, accompanied by the rendition of some nursery rhyme music by her family physician, I finally succeeded in forcing my position and accomplishing the object desired. No doubt the doctor's singing smoothed over that twenty minutes' moral agony for the woman, but will any one deny that its elimination entirely, by the use of one of the hyper-volatile anesthetic agents as an initiative to the narcosis, was the scheme par excellence under the circumstances, and furthermore such a nervous, intermittent and irregularly breathing patient was the very worst type for chloroform, and I wondered greatly that, despite the music, some severe circulatory disturbance did not present itself.

The foregoing paragraphs are sufficient I think to make clear the position I wish to emphasize, relative to the particular point of view indicated by the title selected.

I.

Conditions Governing the Selection of Ether.

Allow my first consideration to be that of ether in this light: No other agent of complete general narcosis fulfills so many purposes in so satisfactory a manner; it has fought its way to the front in the very strongholds of chloroform and I doubt not occupies a place in the confidence of many of my hearers, precluding any effectual argumentative assault.

Its position as a general anesthetic, justifies its early consideration where any complete prolonged anesthesia is demanded. We think first of ether and justly so.

Conditions of shock, such as that of perforative appendicitis or that associated with severe accident traumatism, present vaso-motor disturbances, which strongly plead for the stimulating ether in preference to the depressing chloroform, and to use chloroform under such surgical circumstances, has no pardoning defense.

A condition often under consideration, where a general anesthetic is to be administered is that of slight or grave nephritic disease—much stress has been laid on the belief that ether was always unfavorably active with both pulmonary and kidney tissue, but contrary to the latter part of that belief, to-day the preponderence of evidence points decidedly to the conclusion, that chloroform produces more constant and more lasting effect upon the nephritic glomeruli than ether.

Choice between the two great anesthetics in nephritic disease should depend on the secondary effects of that disease as present in each particular patient. In the case of a nephritic patient with evidence of cardiac degeneration, where the heart and circulatory system is the dominant pathological condition by all means select ether. On the other hand, with decided tendency toward serous exudation into subcutaneous tissues, past or present, select chloroform and avoid the possibility of causing a pulmonary edema.

Possibly more often than disease of kidney does disease of the heart enter into the question of choosing an anesthetic. With Spencer (Amer. Med., Vol. VI, No. 2), when I am called upon to give an anesthetic, I am pleased to learn that the patient has a feeble heart, if it is not due to fatty change. Such do well under ether without stimulation.

H. C. Wood (Therep., 1905) boldly states that "no condition of the heart is an absolute contra-indication to the administration of an anesthetic," and recalls the fact that the cases fatally affected by an anesthetic are not those with recognized disease of vital organs, but the supposedly healthy ones.

As a rule in all cases of weakened and diseased *heart muscle,* from whatever cause, chloroform is decidedly dangerous; ether is not so. Loud, distinct valvular murmurs are usually associated with efficient compensatory muscular hypertrophy and with any reasonable care, an anesthetist may feel comfortably secure with ether.

While on the subject of cardiac disease in its relation to anesthesia it seems in place to note the difficulty encountered with any anesthetic, when administered to an excessive user of tobacco. Hewitt believes that a C.E. mixture works more satisfactorily with them than either chloroform or ether alone.

Operative measures on the respiratory passages of too short duration to demand tracheal administration, offer conditions met by ether, inasmuch as its prolonged effect after the cessation of one administration carried well to the point of surgical narcosis, affords ample opportunity for work of from five to eight minutes duration.

The choice between ether and one of the hypervolabile anesthetics for the removal of adenoids and tonsils, depends almost solely on the skill of the operator, or perhaps I might say the speed of the operator; ethyl chloride or somnoform, with its two to three minutes of post anesthetic analgesia, is sufficient for rapid tonsilectomy, but entirely inefficient for the more time consuming work of the non-specialist. N_2O_2 in connection with this particular work I defer for the later consideration of that gas.

In empyema, any agent which retards the action of the respiratory muscles or center, as is the case with chloroform, is contraindicated; the number of deaths resultant from chloroform anesthesia in empyema of children warns one against its use, despite the associated pulmonary condition. The short ether anesthesia is preferable if one cannot get sufficient analgesia from ethyl chloride, or cocaine locally. A high grade of dysponea suggests local anesthesia only.

The objections to ether in brain surgery no longer hold and Cushing strongly recommends it instead of chloroform.

Mr. Richard (Lancet, July 11, '03) firmly recommends in rectal disease, not associated with pulmonary tuberculosis, the gas-ether sequence, with a later change to chloroform if the ether fails to produce the required muscular relaxation and analgesia of the hypersensative parts in question.

The selection of an anesthetic in grave anemias is a matter of importance. De Costa and Kalteyer (*Amer. Medicine,* May 18, 1901) produce evidence that removes beyond doubt the observation that ether causes actual destruction of hemoglobin and to such a degree that its use in patients whose hemoglobin registers 40 per cent. or less is decidedly dangerous. Even with 50 per cent. the demand must be imperative.

At times it has occurred to me to wonder, if in some of our unexplained deaths occurring after operation, whether this hemoglobin destruction taking place in a patient already depleted of half of his normal supply, was not at least a contributory factor.

The common practice of selecting chloroform as the anesthetic in infants and children meets with no decided statistical antagonism, yet not a few times we have noticed rather severe circulatory depression and suffered a moment or two of apprehension. Ether on an open mask for children is better policy, and the drop by drop method of using chloroform is more productive of danger than the intermittent administration in children.

In ophthalmic surgery, on account of the pupil being unavailable, and also on account of the less evanescent anesthesia, ether is preferable to chloroform where any lengthy narcosis is desired.

II.

Conditions Governing the Selection of Chloroform.

That there certainly exists some

special idiosyncracy among native-born Italians which is not eliminated by residence in this country, resulting in a tolerance for chloroform and an antagonism for ether is undoubted. A fair trial with many such Italians has led me to select chloroform, as a routine, when administering to them a general anesthetic—special circumstances not dictating the contrary.

This peculiarity might be explained by the universal hardihood of the class we meet with in this country, their predominant occupation being of a manual nature, and requiring them to live constantly in the open. Such being the case or not, the fact remains that with the ordinary run of Italians ether presents all of its toxic effects and those exaggerated, while chloroform seldom seems too depressent and produces no untoward symptoms of any description.

It is not in ignorance of your familiarity with certain elements of this subject that I incorporate them in this reading, but when we no longer see that familiar sight of a strong athletic patient being asphyxiated into submission by can after can of ether, then will I consider such detail out of place. The practice still is with us and no amount of repetition is too wearsome, if it can be eliminated.

I refer to that class of patients notable for their adiposity, short neck, plethora and alcoholism. The administration of ether to them tests the patience and skill of the best anesthetists. No middle path between partial anesthesia with active reflexes on the one hand and deep cyanosis with obstructed breathing on the other, can be found. They are either dangerously asphyxiated or moving all over the table, their bronchial mucous membranes are hyper-sensitive and quantities of mucus inundate their breathing spaces. The whole picture plainly says that either ether is not the anesthetic suitable, or the administrator doesn't know how to handle it. The latter granted to be true in a certain proportion of cases, yet there are many which baffle the efforts of the best anesthetist, and in whom ether certainly is not a suitable anesthetic. Some of these cases, either by history or their general physique, can be recognized beforehand and wise selection will dictate the use of chloroform or some of its modifications. If not recognized prior to the beginning of the narcosis, any observant anesthetist will soon discover the early paralysis of the epiglottis and tongue occurring long before any satisfactory degree of surgical narcosis is established and experience, if not the word of his predecessors, will teach him to change his anesthetic either by the addition of O_2 or completely to chloroform.

Chloroform in the athletic alcoholic is more strongly indicated than with any other class of patients. Here the drug reverses itself and acts as ether does with ordinary cases (Gwathmey) In all cases of goitre chloroform is the only logical anesthetic.

Willy Meyer's combination of ethel chloride chloroform and ether, known as "Anesthol," both theoretically and practically appeals to me as an ideal anesthetic in obstetrical operative work—its evanescent narcosis, when given intermittently, allows of the controlling of pain in the second stage of labor, when the head is on the perineum, better than chloroform and need not produce the uterine inertia that chloroform usually does. Consciousness is early eliminated and quickly restored, a self-evident recommendation for its selection in these cases.

No one doubts the preëminent safety of N_2O_2. Yet, its use is limited by neglect of the majority. Its field is extremely large and takes in those minor surgical conditions which are major enough to the patient who has to stand the associated pain.

One physician I know always held that the pain associated with the incision of a felon was psychologically of benefit to the patient, until he was placed in the same position himself, thus transposing the psychology to his side of the question. Since that time he has employed N_2O_2 before putting a painful interrogation to his patients.

Very few contra-indications to the

use of N_2O_2 are recognized. Children before the age of 8 or 10 with their small pharyngeal space and elderly people with sclerosed arteries, in whom we fear cerebral hemorrhage, represent the contra-indications of the extremes of life. The aged, however, in whom we have no reasonable fear of inter-cranial trouble, constitute its greatest field, perhaps, as with them particularly can lengthy periods of anesthesia be satisfactorily maintained.

The choice of N_2O_2 in adenoid and tonsilar removal is, I believe, contra-indicated on the ground that to the necessary asphyxia of the gas may be added the respiratory obstruction from blood in the pharynx, producing a combination of conditions causing dangerous asphyxia.

An exception to this might be recognized in the case of skilled operators, who can snip out tonsils and adenoids in the very short period of anesthesia following one administration of the gas, but even with such speed, secondary inspection or removal of roughened edges is hardly possible without a second administration, and therein lies the danger.

Obstruction of the mouth and nose from any inflammatory process should be considered as prohibitive evidence against the selection of gas, for eg. Angina Ludovici.

There are few valid excuses for subjecting any woman to the unpleasantness of ether or chloroform for the eight to twelve minute anesthesia necessary in doing an ordinary curettage. For five years at least every currettage done in Dr. Jewett's Sanatarium has been done with a N_2O_2 anesthesia, and its satisfaction justifies its continuation.

III.

Ethyl Chloride or Somnoform.

Ethyl chloride or somnoform in their present stage of usefulness occupy about the same position as N_2O_2, and their selection for general anesthesia is indicated in about the same class of cases. Some few special differences from N_2O_2, however, make them useful where N_2O_2 is not satisfactorily so. Short surgical procedures of between three and five minutes' duration can be more comfortably managed on one administration of either ethyl chloride or somnoform, than with gas, on account of the post-anesthetic analgesia existing, after return to partial consciousness has taken place.

Another difference between these two hyper-volatiles and N_2O_2 is the physiological fact that their narcosis is produced independently of any asphyxia, the which cannot be claimed for the N_2O_2. This difference makes their use more physiological than gas, in ten to twenty minute anesthesias, and we only await more confidence in its harmlessness to prefer it to gas in such surgical work as currettage—removal of drains, incisions for cellulitis, divergence of strictures, etc.

Substantiation of the claim for lowered or maintained blood pressure will place it in a position to supersede N_2O_2 in elderly people with or without sclerosed arteries.

Ethyl chloride administered as a routine, during the latter part of the second stage of labor, to control and slacken the progress of the fœtal acciput over a primiparous perineum—recommends itself both theoretically and practically, and I dare say, more general use of its sense dulling virtues would meet with no meagre gratefulness from the child bearing woman of our land.

In addition to the points we have considered from the patient's side of the question and the work to be accomplished, there are certain elements for the anesthetist to heed eminating from the operator. To administer N_2O_2 gas for a surgeon whose peace of mind is disturbed by the cyanosis, the lack of complete muscular relaxation, is to place gas in an unfair position. If ether is his routine anesthetic, the quiet breathing and pale mucous membranes of chloroform and air will interfere with his doing his best work, through apprehension: If he is the practitioner, doing twice a year or less often adenoid and tonsil operations, and is attracted by the attributes of ether chloride or gas—softly and gently warm him, for no good will come of the attempt either for the anesthetizer or anesthetic.

I realize that there are many points left unmentioned, which bear on the subject in hand, but your familiarity with them, makes their mention unnecessary as well as uninteresting.

NITROUS OXIDE AND THE GAS-ETHER SEQUENCE FOR INDUCING ANESTHESIA,

WITH SPECIAL REFERENCE TO THE BENNETT APPARATUS.

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THE subject of anesthesia in general, or any portion of it, is a most engrossing one. Its importance has always been great and is constantly growing, and no effort is wasted in endeavoring to educate the profession and the intelligent public to a realization of this fact. This is especially true by reason of two conditions: First, the astounding results of research along the line of remote systemic and organic after-effects of all anesthetics (Guthrie and Bevan, 1905); and, second, for a considerable time to come, in the United States at least, the larger proportion of cases will be anesthetized by comparatively inexpert persons. Surgical procedures are constantly increasing in number, and with them the need of anesthesias.

Several evenings could be wholly occupied with this one system of combined agents without exhausting the fund of facts and experience, hence I have endeavored to be as concise as possible. Although the subject of anesthesia is most interesting and something can be learned from each case, it is unnecessary, and time does not permit discussing the physiology of this process in general.

Outside of supervising administration in hospital work, I base these findings on somewhat over 2,500 cases, divided roughly as follows: Gas-ether, one-half; chloroform, one-fifth; straight ether, one-eighth; nitrous oxide alone, one-eighth; all others, one-sixteenth.

In anesthesia we must remember: Effects produced by the administration: Dangers connected with the administration (intercurrent conditions and not quantity): After-effects and special application to individual cases.

Nitrous oxide is the safest anesthetic known, and its administration with air or a small quantity of oxygen is practically without danger of death in any case, although their use is not necessary in most cases. It will be needless to review its discovery, preparation or properties, except to say that it has been known since 1772, has a slightly sweetish taste, and is odorless. It is a most ideal general anesthetic for minor surgical operations and for preliminary administration in ether sequence.

In view of the adaptability of N. O. alone I wish to speak of this feature before mention of its use as a preliminary agent.

The anesthesia is a rapid one, easily brought about, without danger, and followed by a quick return to consciousness; patients expressing complete satisfaction and wonder at the slight amount of inconvenience caused by this agent. It is not to be compared for general surgical work and preliminary to ether with some other agents suitable for dental manipulations.

There is no analgesia beyond the point of administration, claimed for others, but there is no danger.

No special apparatus is required in addition to that for ether sequence. When used properly, post-operative nausea and vomiting is slight or rare. No suffocation is complained of by the patient and it does not affect the heart. Cases of idiosyncrasy and intoxication are rare from reports, and personally I have seen but three to date. If one is careful to allow a few breaths of air after putting inhaler against the patient's face, to gain his confidence, and then turn on pure gas, but few seconds elapse before a loss of consciousness begins and proceeds rapidly.

N. O. causes at first a rise of arterial pressure (vasomotor stimulation) followed by a fall (vasomotor depression), there is a slowing of the heart (stimulation of inhibitory centre in medulla), and finally from a slow to a more rapid beat, due to vagal palsy. The effects, according to Hare, are due to moderate asphyxia. With oxygen in usual amount no anesthesia results, but a small amount of air or oxygen permits of good anesthesia; M. Claude Martin, reporting a case of sustaining anesthesia in a dog for three days, with N. O. and 15 per cent. oxygen. Frankland and Herman find absolutely no chemical change in the blood, it enters and leaves the same. From its physical character the toxicity is comparatively feeble. McCardie reports deaths practically nil, 1 in 1,000,000; also that the calibre of renal vessels is changed in accordance with arterial pressure, renal secretion lessened, and transitory albuminuria and glycosuria may occur. The main contra-indication is in apoplectic subjects, from rise of blood pressure caused during administration.

This agent is suitable for almost all cases, especially if ether or chloroform or the mixture is objected to or ordinarily inadvisable. Often ether or chloroform is considered necessary, but this is not so. I have given N. O. for operation on patients varying from 2 to 84 years of age. Contrary to some statements recorded, my experience has been that it is extremely efficient in cases of curettage, fistula and hemorrhoid operations, several circumcisions in children, for a few appendectomies, somewhat over one and one-half hours for curettage, trachelorrhaphy and perineorrhaphy, and carbuncles, not forgetting removal of dressings and secondary suturing. In view of Dr. Gant's recent articles along the line of local anesthesia in rectal conditions, it would seem that in many quarters this being not sure without considerable experience by specialists, and the individual unknown susceptibility to pain, N. O. is a good agent to remember. By making use of rather free supply of air the jactitation often complained of during work in this region, can be avoided.

It is most certainly important to avoid ingestion of food for several hours after administration. Patterson and Flux and others fail to find in many hundreds of cases disquieting symptoms or after effects.

In the administration, we find deep inhalations and stertorous breathing with tendency to tonic or clonic spasms of the respiratory muscles, but a small amount of air or oxygen relieves the stertor, epileptiform movement and cyanosis. The average time of inducing anesthesia is 56 seconds. In deep narcosis, remember respiration fails first before heart, and a condition of muscular spasm prevails, not paralysis. Without question, the hypodermic use of Morph. Sulph. 1/8 or 1/4 gr. with usual accompanying atropine, one-half or three-quarters of an hour before beginning, and in very nervous subjects Hyoc. Hydrobr. 1-200 gr. also, lessens the voluntary control over respiration and tends to lessen possible nausea and vomiting afterwards. I find it positively limits the post-anesthetic intoxication often seen.

Comparing other agents, ethyl chloride, ethyl bromide, somnoform, etc., either for straight anesthesia, or preliminary to ether, they do not show up satisfactorily.

McCardie in recent reports proves that ethyl chloride is not so innocuous as previous collections of statistics would indicate. Usually contra-indications have been simply obstructive lesions of the upper air passages without special reference to heart conditions, but this organ has been found absolutely normal in some fatal cases. In the few administrations I have given and the ones I have witnessed, there seems not any advantage over N. O. in any way.

Ethyl bromide has not been personally used but falls in the same category as the ethyl chloride. Somnoform practically requires a special inhaler. All of these agents are extremely quick, but at best only a few seconds time is saved and with an added element of danger and anxiety.

Ordinarily most cases of short duration act satisfactorily during anesthesia and recovery by carrying the patient to a point of pronounced narcosis, allowing a few breaths of fresh air and continuing with the N. O., repeating this method as often as required to enable necesary attention to be given surgically. For the longer administration better results follow the use of a less severe narcosis, allowing the gas to flow with less force and compression, and at short intervals admitting a supply of air to the current breathed in by patient.

The Bennett apparatus is more efficient than the ordinary dental inhaler so frequently used, by reason of the greater elasticity of the rubber bag, the valve partition separating the inflow of gas and outflow of expired air and the admittance of fresh air close to patient's face by means of the slide in face-piece.

The nitrous oxide-ether sequence is a system devised by Clover, who with Hewitt brought out the earlier form of apparatus, Bennett in this country going ahead still futher to construct a less cumbersome and more easily useful instrument, adopted in many hospitals and used by Carter, Gwathmey, Pedersen and others, the two latter devising instruments of their own, the main feature being a combination of the working parts of the two cylinders.

As ether is five times as safe as chloroform and this method includes safety and quickness of N. O., it is much to be preferred. Chloroform causes some deaths in healthy subjects. There is the same objection to other agents than N. O. as preliminary, as alone. Without question it is the best method with children and women, but strong, vigorous men, especially drinkers and heavy smokers, are not so ideal subjects. While the criticism is made of its being a partially and sometimes almost a closed method, still the fact remains that the patient is left ordinarily in a much better general condition than by the older method of straight ether, remembering the personal equation of the anesthetist in every case.

The time for inducing surgical narcosis varies from two minutes upward, averaging from four to six. As regards the effect of anesthetic material on the kidneys, feared by so many, any method using ether as compared with chloroform is better, for a prolonged chloroform anesthesia will cause more degeneration in a diseased organ, or become the causation of a pathological condition not existing previously.

The use of a dental inhaler first and switching to the open cone for giving ether, used so much at first and still followed in some quarters, is certainly not so desirable a method on the score of ease of manipulation and the condition of patient, as a combined apparatus; in my experience to date, the Bennett preferred. There is no break in a continued narcosis in changing from gas to ether.

One of my earlier experiences with the N. O.-ether sequence was a personal one, having need of an abdominal operation shortly after Dr. Bennett established himself in New York City as the first expert anesthetist we had. The apparatus used was one of the Doctor's earliest models, in the main practically the same as manufactured to-day. My own experience, after Dr. Bennett made a few suggestions about the breathing, was that after reaching seven on a slow count I remembered or realized nothing until several hours afterwards, recovering without nausea or any untoward sensation, and this is approximately the experience of others.

The sensation of going under the N. O. as the first portion of the combined sequence is exactly the same as with the gas alone. With the saving of the inhalation of ether vapor to induce the first stage of narcosis, using a fair amount of air during administration, and by the small amount of ether required to maintain narcosis (average 100 gms. per hour), and thus avoiding saturation of the circulation, we have the reason for the improved condition of the patient at end of operation and in recovery which this method insures. We may be sure of the minimum after-effects by use of the minimum amount of anesthetic material. Snel (B. K. W. 1903) proves that narcosis arrests the immunity of the epithelium of the lung; according to the length of time, so is the normal bactericidal power partially or wholly abolished for the time being and for several hours following.

On general principles, the A. C. E. and C. E. mixtures, as regards danger or safety, stand between ether and chloroform and hence I believe are not to be compared with this method. The use of the straight ether in point of time and tendency to bronchorrhoea is not so good, although I do not for one minute forget that by careful, steadily increasing dosage by experienced persons, the ether drop method or vapor method is very close to the gas-ether sequence, in end results.

In practical application, this sequence is to be preferred for abdominal cases as ether furnishes a more uniform narcosis than chloroform. As some few individuals have a peculiarly sensitive skin reflex, and incision is so often made promptly on cessation of the ordinary reflexes, it is advisable to use a rather stronger saturation of anesthetic just before this is done and until the peritoneum is opened, than will be found necessary during the completion of operation.

By reason of its quickness and the avoidance of ether to commence anesthesia, in cases of many nose and throat operations, especially removal of tonsils and adenoids in children, it is most suitable, reducing mucus and bronchorrhoea to the minimum. My own experience and observation, together with some operators' views, leads me to believe that chloroform carefully administered in these cases is reliable, but without question ether is more generally preferred by nose and throat surgeons, and the sequence shortens the preliminary stage.

As regards medication before commencing anesthesia, some patients are benefited by a small continued dose of strychnia, or special drug, in case of any organic defect, for some days before operation. In most cases a hypodermic of strychnia sulphate 1-60 or 1-30 gr., just after narcosis is complete is of decided advantage and often avoids a sudden depression of heart muscle or respiration. The statement of medication before N. O. alone, in most cases applies equally well in this sequence, as it tends to produce a more gradual recovery of the higher centres. In alcoholics, I believe we would often have better administration if whiskey were given either by mouth an hour before or by hypodermic just before commencing. While it is often necessary on account of the breathing or cyanosis to give atropine sulphate with or without strychnine during operation, this sequence unquestionably lessens the requirement in this regard and is often not necessary.

Any apparatus enabling the anesthetist to induce and maintain narcosis with the small quantity required by the Bennett inhaler, necessarily does not keep the patient saturated with the anesthetic, and with a beginner careful attention is absolutely required to avoid any condition of movement (extremities, straining, retching, etc.) during operation, interfering with the operator and with proper breathing, as often intra-abdominal manipulation such as arrests full action of the diaphragm, sudden stretching of the opening, etc., will do.

While it is not always possible to avoid it, the custom of the anesthetist's keeping a chart of respiration, pulse, etc., is wrong, as it should be kept by some other individual.

With this sequence, care should be taken that the discontinuance of giving the anesthetic does not allow patient to show reflexes until the completion of operations, dressings, etc., if the recovery is to be quiet and satisfactory.

In patients requiring anesthesia, a cerebral narcotic is usually not contra-indicated and ether alone or in combination is the anesthetic of choice. My own opinion is that for proper anesthesia in all its phases there must be an individual adaptability of the administration more than the actual material or apparatus, and Bloodgood, in summing up the work in this branch during 1905, speaks of this point particularly. Without question to my mind, where there is a marked anaemia, or a definite lesion of the lung, heart or kidneys, the administration should be by one particularly experienced in anesthesia with special reference to choice of material and the medication used just previous to administration and during the continuance of the narcosis.

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THE CHLOROFORM AND ETHER SOLUTION FOR ANESTHESIA.

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ONE of the most important factors in operative surgery is the question of anesthesia, and in these days of the introduction of new methods and agents for the means of anesthetizing patients, it is wise to consider before a body of those engaged in this part of operative work the points of importance of the different anesthetics. This paper will be limited to the consideration of the solution of chloroform and ether as a general anesthetic, dealing with the main practical points only.

By the solution of chloroform and ether, in this instance, is meant equal parts of each, and the points considered in this paper shall be those deduced from the observation of its use in cases operated upon in the Cumberland Street Hospital:

1. *In what classes of cases may it be used, and is it a safe anesthetic?*

Being a solution of equal parts of chloroform and ether, the two most universally used agents in general anesthesia, it combines the qualities of both, while at the same time the complete action of either is modified by each. It is claimed by those who have had the solution examined chemically, that the result of bringing the two substances together is simply a solution and not a newly formed compound with new properties.

Experience has already proved that this anesthetic may be used in many cases where chloroform would have been impossible on account of heart conditions, or either might have worked harm to hardened arteries or affected lungs or kidneys. The chloroform and ether solution has been used with safety in almost all cases which have come before the surgeon for operation. The heart is not greatly accelerated by the ether nor is it depressed by the chloroform, but it is a very little above normal throughout the operation. It has been noticed that in cases which have gone bad under the anesthetic, the respirations have suddenly ceased while the heart has kept along for some minutes.

2. *What is the length of time required to produce profound anesthesia, and how much anesthetic is used during operation?*

This, of course, varies, as every case is different. Under ordinary conditions, where a patient has been prepared for operation and the patient is not alcoholic, the time necessary to bring him to a complete anesthesia is from five to eight minutes. Many cases have required only two or three minutes, while others have only been controlled in from ten to fifteen minutes. One of the points in favor of the solution of chloroform and ether is the small amount used, the average for starting patients being from one to two ounces, and to keep up the anesthesia one to two ounces per hour. In a series of seventy-five cases, the greatest amount used for an operation lasting about two hours was seven ounces from start to finish. Many cases have been carried along for an hour with only one ounce after the operation was started, and rarely are over two and a half ounces an hour needed.

3. *Method of administration.*

In giving the chloroform and ether solution, the open inhaler has been used generally. The patient having been prepared as usual, a few drops are sprinkled upon the inhaler and it is held near the face until accustomed to the vapors, when it is brought down over the nose and mouth and the anesthetic is administered by continuous rapid drops, the mask now being covered around the edges with a towel to exclude air from the sides. Every few seconds, the inhaler is raised to observe the color of the lips and to admit a breath of pure air. When the breathing becomes deep and regular, the towel is removed and the mask may then be held a little away from the face or only touching one side of the face, unless the patient shows signs of coming out, when it is again held closer. A few drops at a time every few seconds are now sufficient to maintain and control the case.

The peroid of struggling is short and in many cases absent. The two most important signs to watch are the respirations and the color of the mucous membranes, especially the lips; if the respirations are deep and regular and the lips a normal color there is no danger, and yet the patient is in a perfect state of relaxation. The pulse should be watched for any changes.

The pupillary signs are not reliable, except that when fully dilated they reveal danger; they may or may not be contracted during deep anesthesia. The amount of mucus secreted is small as compared with straight ether, and is almost nil while under deep anesthesia, but increases as the patient returns to partial consciousness. By carefully noting that the respirations are regular and deep and that the mucous membranes are of a normal color, the patient may easily be kept on the border line of safety without a great deal of the anesthetic, a few drops being added every few seconds. In this way a patient may be carried along safely under ordinary conditions for several hours. The cost of the anesthetic is thus within the limits of economy, a very important factor in large hospitals.

4. *What are the after-effects?*

Post-nausea is present in about

ninety per cent. of the cases, in many instances so slight as to cause little discomfort; and vomiting occurs in a smaller percentage of the cases. The return to consciousness takes place in from ten minutes to one-half hour, varying in accordance with the amount of anesthetic used, the length of time on the operating table and the patient's general condition. In post-operative shock, the return to consciousness is of course indefinite.

Generally there is great thirst, due to the effects of the ether; but the effects of the anesthetic pass away within twenty hours, as a rule.

One of the facts to be borne in mind is the solution should be freshly prepared before each operation on account of the more rapid evaporation of ether than chloroform; another proof of the fact that, as claimed by those who introduced it, it is a solution and not a chemical compound. The author of this paper would favor the solution in unequal proportions, such at 2.1 or 3.1, in some cases where ether-chloroform or ether alone would be better indicated.

In conclusion, the advantages of the chloroform and ether solution are: the safety of its use in a large proportion of operative cases, the time required to anesthetize the patient, the small amount of anesthetic necessary, and the simplicity of the apparatus used.

ETHYL CHLORIDE AND THE NEWER ANESTHETICS.*

SOME PERSONAL EXPERIENCES.

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Instructor in Anesthesia at the Long Island College Hospital, etc.

IN 1904 a paper was read before this Society by me on ethyl chloride as a general anesthetic. That essay was based mainly upon the literature and the reports of others; to-day I purpose to avoid quotations and to confine myself to a simple narration of my own personal experience with this and several other newer anesthetic agents. I am able to do this largely by the courtesy of the surgeons of the College Hospital, and the interested assistance of the present resident anesthetist, Dr. Watson. The other cases were seen in the course of my private work.

Ethyl Chloride.

First, then, ethyl chloride and the questions which are always asked regarding its use. Is it safe? How do your patients like it? Are there any unpleasant after-effects? Does it give a long enough anesthesia? Can you use it with anything else? What is the best way to give it? I trust this recital of a few selected cases will be an interesting answer.

It was entirely safe in the case of an infant of four months who was anesthetized for twelve minutes during a circumcision. I used an ordinary Esmarch frame covered with six layers of a fine mesh gauze. At first, in order to aid the volatilization as well as to confine the vapor somewhat, I held my hand over the mask and sprayed fractional drops with each inspiration; and then when the anesthesia had been quickly and easily induced, I continued it for upwards of fifteen minutes by dropping full drops from time to time as it became necessary to maintain varying depths of unconsciousness. There were no signs of depression, cyanosis or bronchorrhœa, and the recovery was delightfully pleasant and rapid. I have repeatedly used it without any manifestations of danger at the other extreme of age also. I well recall a Mr. P., in whose case I made use of an Allis inhaler by covering the inlet except a small aperture, say an inch in diameter. Through this opening I continuously sprayed a fine stream until 5 c. c. had been used. This was at once followed by ether in much larger doses than is usual when beginning with ether alone. There was no choking or struggling, the respirations were even and quiet, there was no change in color. "Bad cases" also have done well. There was a young adult in the Immigrant Ward who had behaved so poorly once before under ether that Dr. Parker welcomed my offer to try ethyl chloride. His empyema was severe and had greatly emaciated him, and there were signs of systemic infection. I felt it was wisest to give him a plentiful supply of air, so I used the large bore Ware inhaler fitted with metal valves. He did exceptionally well throughout the whole thirty minutes of the anesthesia. I used a 30 grm. tube, but there was much waste and great inconvenience because the tube was not fitted with a spring stopper. Time to establish the anesthesia was four minutes; to recover from it also four minutes. I recall an earlier empyema case which was really worse in every way, which yet did equally well. The great advantage is that an evanescent yet profound anesthesia can be maintained in the presence of a plentiful supply of air. Dr. Watson had a case last Tuesday in which the anesthesia was maintained for a little over an hour without any sign of danger, except on two occasions when the dose was knowingly large. This was during the course of the anesthesia when a 5 c. c tube was at once emptied into the bag—we were using this Ware-Stark inhaler. The pulse quickly dropped, once ten, another time fifteen beats, but immediately recovered when the too-deep anesthesia passed over. On the whole, considering that the patient weighed 225 pounds and that a closed method was used, the anesthesia was very satisfactory. Yet I would rather not do this again, for there have been enough fatalities reported to give one some concern. If a plentiful supply of air is given, the danger is very much minimized.

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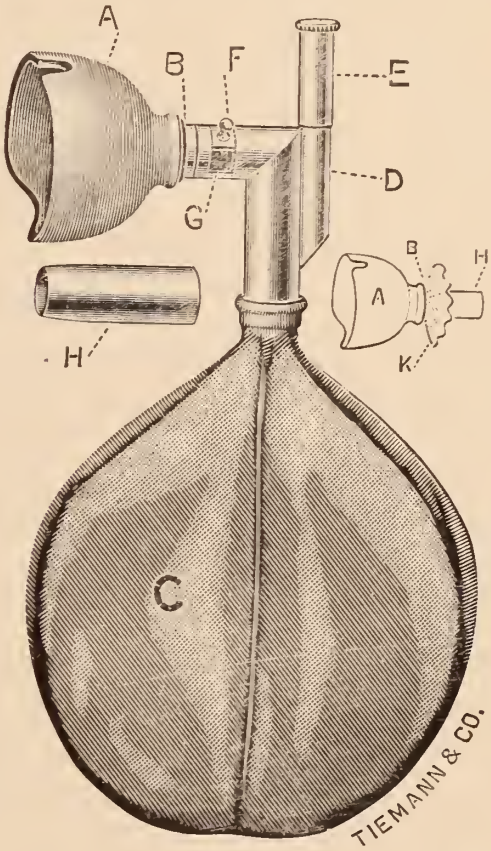
*Read before the Associated Physicians of Long Island, June, 1906.

Concerning the pleasantness of the inhalation I have found differences of opinion. But the patients have objected only when the vapor was too strong. Now that was clearly my fault. It occurred in my early experience because I did not realize that a concentrated vapor of ethyl chloride will choke one. I have in mind, and remember with much chagrin, one of my first anesthesias. The patient was very nervous—so was I—and when I tried to give her 5 c. c. at once in a cornucopia inhaler she almost bounded out of bed, gasping and struggling. I do not know how that operation was performed. I can still see the surgeon endeavoring to do a curetting, holding up one of the patient's legs with his head, and keeping her knees apart with his shoulders. When I began to use the bag I again found that sometimes a patient, especially a child, would object to the strong dose. These experiences are never met with if one begins with a small quantity and only gradually, though quickly, leads up to a concentrated vapor.

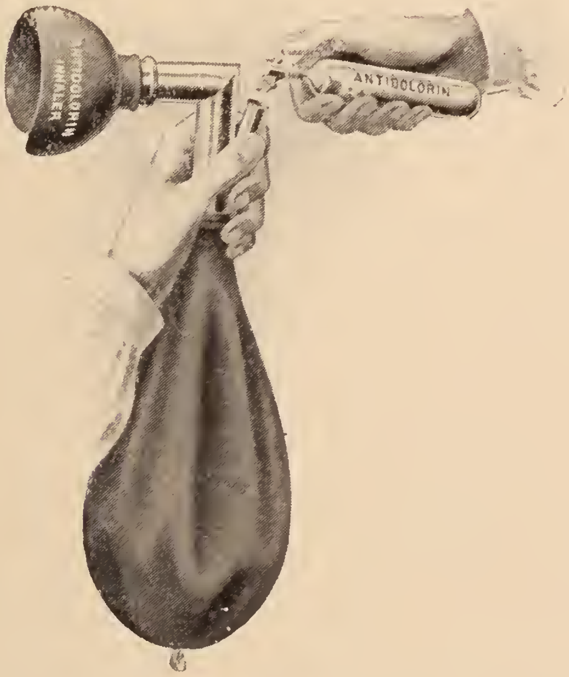


Ware-Stark Inhaler. H is tube in position in smaller figure showing Ware's form.

Irritation is an exaggerated unpleasantness. I had many times wondered if there was any ground for the objection made by some that ethyl chloride is too cold for the bronchial and pulmonary membranes, but never had been able to find a suitable case upon which I could rely for proof. When, then, Dr. Bristow offered me a tracheal anesthesia I said "Here's my case," and indeed it was a very interesting and successful anesthesia. The operation was an exploratory laryngectomy. A tracheotomy having already been done some time before under chloroform, I was able to begin at once through a tracheal canula. I will not weary you with the details. Suffice it to say that this operation, and a second one a week later for the total extirpation of the larynx, was done without any trouble from the anesthesia; nor were there any unfavorable sequelae. The patient, himself, was entirely pleased and I was very much satisfied to have learned something more about ethyl chloride.

Now, about the after effects. I have seen all sorts—emesis, involuntary micturition, tremors, dizziness, delirium, faintness, prostration. This appears to be a formidable list; and it would be a severe objection to the use of ethyl chloride if these all followed each administration. As a matter of fact it is only an exceptional case in which any one of them is encountered. It is their possible occurrence which makes one hesitate to promise immunity to every patient. I have seen many patients awaken without the slightest annoyance, just as they would be expected to recover from a nitrous oxide inhalation. But on the contrary I have had several patients vomit promptly, freely and even persistently. To be sure one of these was a "double dyed, triple distilled neurotic" (the operator's characterization). One could hardly expect her to behave well. The other one was a little girl who also was under my care on two occasions; and she, like the other, did have a bad time of it. Yet, here again, there was a cause for the vomiting, for she had been a dyspeptic for several years. I can add only this comment that ethyl chloride will not save those who are predisposed to gastric disturbances. I consider a nitrous oxide anesthesia superior in this respect. On two occasions I have noticed that a suspicious moisture was left on the dental chair. This accident is not at all peculiar to ethyl chloride. Quite often patients have shown a mild and very brief hysterical confusion, which really never amounted to a delirium. There would be sighing, or sobbing; some have laughed, others have attempted to get up and walk away. One case especially attracted my attention. It was a young woman, probably about seventeen, who came to the Polhemus for the extraction of a tooth. As she hurriedly got up from the chair and insisted upon leaving the room she gave us such a shame-faced and angry look that I suspect she was one of those few who have erotic dreams. I have seen the same thing happen under ether.

Once in a while a patient exhibits a marked depression even after an ordinary dose. The only time I saw this was at a demonstration given before a dental society. It was my privilege to read the paper of the evening, while a dentist conducted the demonstration. Several cases did exceedingly well; but one, a young woman of spare build, anemic and nervous, showed quite a marked prostration after the anesthesia. She was able to walk to an ante-room, and I suppose most of the audience considered her's a typically successful case; but I was interested to see the thing out and I found that she was pretty well upset. Such a case has never occurred under my own personal supervision. To be sure we often see dental cases who would stagger if allowed to get up at once—that is not a wise thing to do. After a minute or two, during which interval they may appear to be dazed and confused, sometimes breaking out in a fine sweat, they will be able to get up unaided. answer questions and act perfectly naturally. Of course, the longer the period of anesthesia and the larger the dose one must expect to find greater disturbance. So many cases, especially of primary anesthesia, do so well that one is tempted to overlook the few in which the course was not so free from unpleasant sequelæ. There occurs to me with particular force the remark which a friend made to one of our number, when he met the latter as he was riding home in a car with his three-year-old boy, whom but fifteen minutes before I had kept through a ten minute anesthesia during a circumcision. When told what had been going on the man looked his astonishment and voiced it by saying, "Well! He surely does not look is if he had been through anything like that."



Dr. Green's Inhaler, very simple and satisfactory—no valves, no gauze.

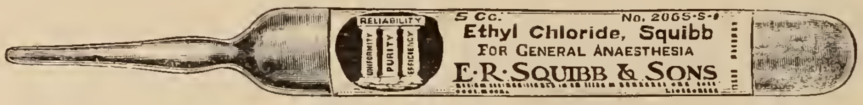
Is there sufficient available anesthesia. There certainly has been for the extraction of teeth. I demonstrate this repeatedly at the Polhemus Clinic for the students, as a part of their instruction. Three c. c. of ethyl chloride will give an available anesthesia of forty to sixty seconds in the case of children and small adults. Many times I judge 5 c. c. to be necessary, usually so for men and large women. If the whole amount is used I feel safe for a full minute of time in which painful manipulation can be done. Sometimes a patient will move or even struggle; but rarely have they said that they had felt any pain.

One of Dr. Wight's cases at one time chanced to be for the purpose of taking an X-ray photograph of the neck of a nervous little girl. I broke a 5 c. c. tube into a bag inhaler, and gave her pretty nearly all of it. He was able to get a fifty-seconds complete relaxation and a beautiful plate.

I do not confine myself much to primary anesthesia, for it is so simple a matter to prolong the narcosis. Yet when any operation or manipulation can be done in about a minute of time a primary anesthesia is amply sufficient. So I have used it in a number of instances for work about the mouth and in the fauces. But I do not like to unless the operator can work rapidly. There is a danger that he will hurry too much, as I know one did when he removed some of the peritonsillar tissue with the tonsil. It is largely a matter of co-operation and knowledge of methods. Several times I have met with cases which did not yield to the agent. Strange to say, in one instance there was not sufficient muscular relaxation to do easily an ocular tenotomy; and in the other, there was a persistence of consciousness, but with complete analgesia, during a celiotomy for an operation upon a gall bladder.

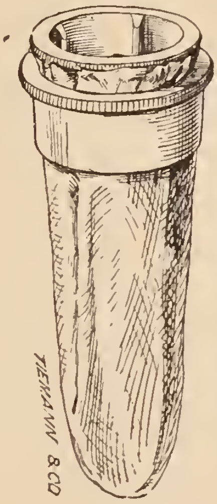
Ethyl chloride has certainly been very convenient as a preliminary anesthetic. It is ever so much better than nitrous oxide because a special apparatus is unnecessary. I have repeatedly made use of it for this purpose. Yet one does not need any anesthetic antecedent to ether if there is plenty of time to proceed gradually, and if the patient is sufficiently composed to bear a varying long initial stage. For children, however, particularly, as well as for many others, it is a great comfort to produce the anesthesia quickly. I do not intend to state the pros and cons of that question. I will simply say that I am persuaded this is so. I also know that a bulky apparatus is very objectionable to many patients. The fact just is that the certainty, ease and acceptableness of an ethyl chloride anesthesia has won me many good words. There is yet another way in which this agent can be used, and that is in combination with the others, even nitrous oxide. It was Hewitt who suggested the feasibility of employing ethyl chloride with nitrous oxide. One great advantage is that the ethyl chloride is so diluted by the nitrous oxide and so increases the strength of this latter that the good qualities of each are greatly enhanced. I have used this combination with both alcoholics and neurotics and found that they go off much better than with either one alone. Dr. Willy Meyer first advocated the use of ethyl chloride with both ether and chloroform. He has given the name "Anesthol" to this solution. It is practically the A. C. E. solution with the alcohol replaced by the ethyl chloride. The exact proportions are 2.05, 4.325 and 5.675 parts respectively. I was well prepared to try this combination for I had already been using the Schleich solutions for several years. Solutions have never found general favor in this city; yet there would seem to be a place for them. One trouble has been that they have been used mostly in an Allis inhaler. This I believe to be bad policy unless one can resist the temptation to forsake the drop method. Anesthol has given me a number of good narcoses. Its effect is rapid. There is very little tendency to bronchorrhea, a small quantity suffices for an ordinary operation. While I have had several scares, I am confident, as I think back over them, that they were because of my failure to recognize that I had given an excessive dose. These were cases in which a preliminary morphine injection had been given. I do not like the use of morphine. These combinations ought to be tried. I am sure we will find some good in them.

A whole paper could well be devoted to a discussion of the best methods of using ethyl chloride. We have tried many ways: With bags and without; from all sorts of containers; have dropped it and sprayed it and poured it; have given it for a few minutes and for an hour; I have frequently taken it myself and have given it to various patients. It will suffice, if I say that I like best to use that ethyl chloride which is known as "kelene"; and that any kind of an inhaler which is provided with a closely fitting face piece and a bag will do very well for a primary anesthesia. When a continuous anesthesia is to be maintained I find that I obtain my best results without the bag. In that case, I choose a Ware inhaler, which Tieman has fitted for me with valves. Sometimes, and particularly with children to whom any large apparatus is repulsive, I used Henning's tubes in a cornucopia inhaler. The beauty of these tubes is that they have a fine capillary opening. I have never seen any others as good at the price. Squibb sells small tubes; but the good ones are too small and too expensive, and the large ones are also too expensive and are not drawn to a capillary tip. The Fries tubes are good, but have too large a capillary point. Of course, when tubes are to be broken into a bag they should empty their contents at once. When that is done the vapor is too strong to be at once inhaled. The full vapor must be exhibited only in the course of several inhalations. This can be done either by keeping the face piece tilted away from the face for the first two or three inhalations, and applying it snugly when the expirations take place, so as to catch them in the bag to dilute the vapor, or the air valves can be opened and closed with each inspiration and expiration. The Ware-Stark inhaler adapts itself very nicely to this latter procedure. A Somnoform inhaler will do as well—indeed, I like it very well because it has a larger bore. An Allis inhaler can be used by closing in the top—all but just enough space for the tip of the container. To be



Blunt point, used only in Bag Inhaler.

sure, this is rather wasteful, and ethyl chloride is by no means cheap; but it can be done and very well, too. It will be found necessary to push the ether, if that is to follow, to get the patient into the third stage before the effect of the ethyl chloride has disappeared. Sometimes I use an ordinary Esmarch or Ferguson's modification.



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Pedersen's Tent.

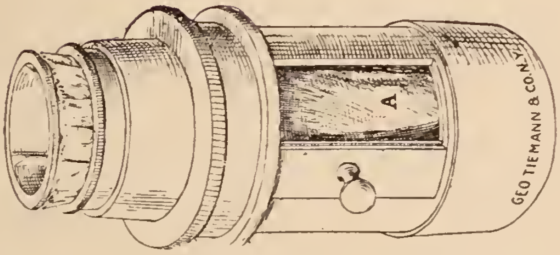


Fig. 5

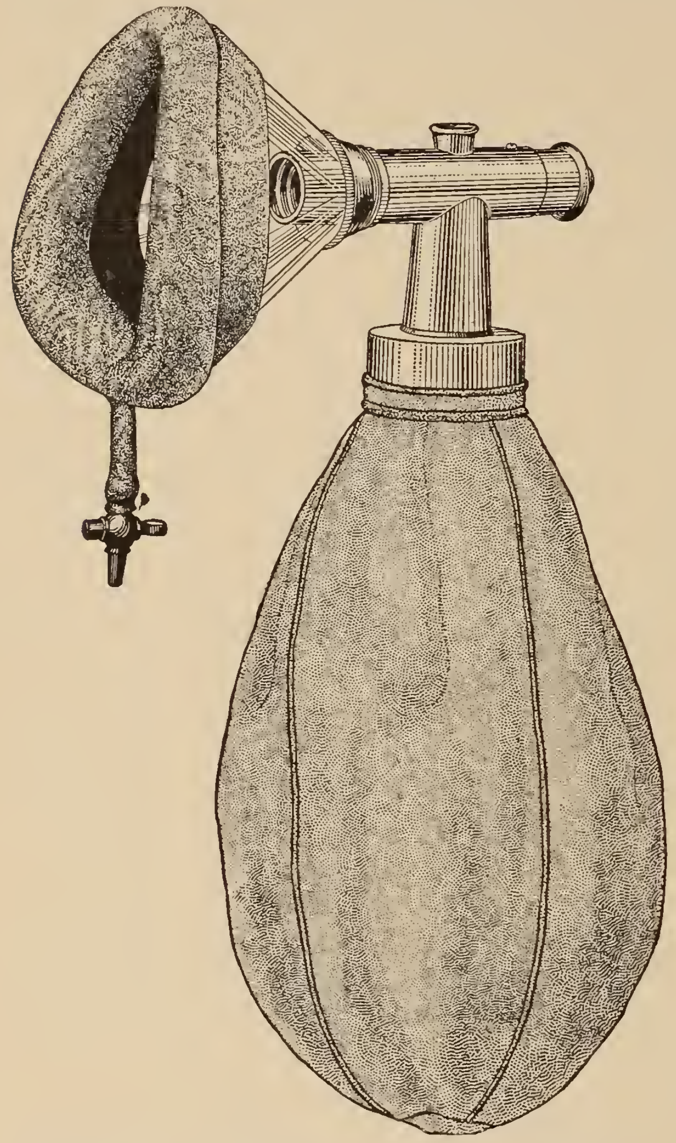
Pedersen's Tent in position.

It can be readily understood that this will do only for patients having a small lung capacity. Perhaps half a dozen times I have used the Bennet ether apparatus. Dr. Pedersen has invented an ingenious tent for this, but I do not feel the necessity for any extra fixture. If the ethyl chloride is sprayed into the accessory bag, through the valve in the elbow, enough can be gotten in to permit the use of the apparatus, just as if nitrous oxide gas were being given. In using it in combination with gas a very simple plan is first to spray 5 c. c. into the gas bag through either end, and then fill the bag with the nitrous oxide. The to and fro breathing will have to be allowed sooner than when gas alone is used. However, if the patient will take several deep breaths before the face piece is applied, the blood will be well oxygenated and the deprivation of air will be better borne.

The ethyl chloride can be delivered in various ways. If one wishes to use it in combination with either ether or chloroform, or both, the cheapest way is to buy Squibb's one-ounce cans. The whole ounce will have to be used, for there is no way to close the can. Probably the wire stopper will break off—I would not depend upon it any way; a fine pin-point will do very well. (I once foolishly opened a can as if it were ether.) It will be found best to add it last. If you are going to use a tube with a spring nozzle you will save yourself much annoyance, perhaps, if you will try it before you leave your office, to see that the tip works well. Sometimes a tip becomes clogged. The easiest way to free it is to warm it against the tongue; if one is very careful the tip could be immersed in warm water. Another annoyance sometimes met with is to discover unexpectedly that the spray is too coarse or too fine. For use with a bag the quantity desired should be released quickly; but for extended work such a tube would be wasteful. Yet here again a very fine stream is also objectionable, for not enough of the fluid will be delivered rapidly enough to maintain the anesthesia. I like a stream about the size of a very fine cambric needle for general use. It will both drop well and spray well. But if I were doing much primary work I would choose a tube with a large opening, so as to get a supply of 3 or 5 c. c. very quickly. The trick in manipulating the spring is to press hard at once and to release it with a snap. A "Bengue" spring can very readily and unintentionally be opened so far as to catch in that position and then have to be released again. This is very annoying. The "Antidolorin" spring works hard and is tiring. The "Kelene" spring is very satisfactory; but the tube, unlike the others, cannot be refilled.

There is a small fortune waiting for someone who is able to refill the "Kelene" tubes.

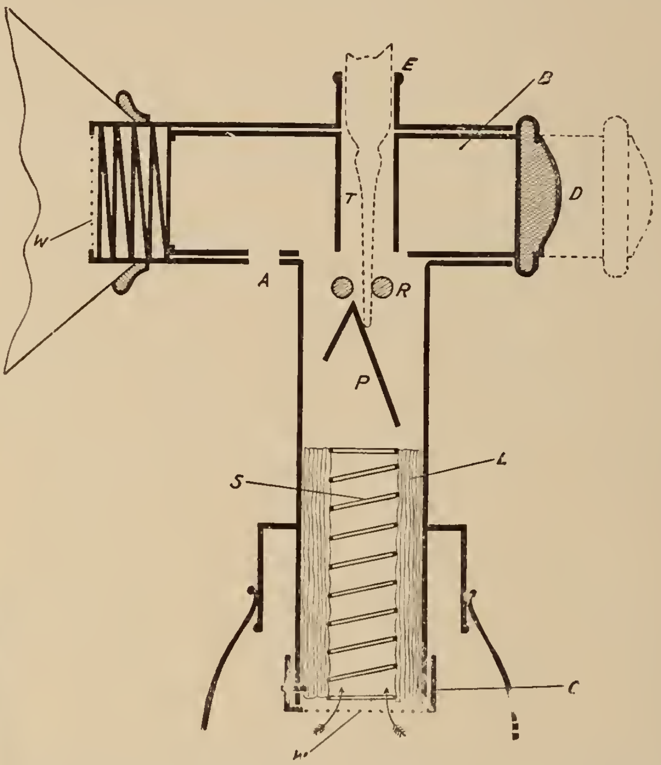
The character, as well as the price of ethyl chloride varies considerably. You will find the most expensive cheapest and most satisfactory. I know, though, that all the brands on the market are used quite extensively. A peculiar circumstance has arisen in the manufacture and sale of ethyl chloride, in that the Fries people claim to control the use of any container which is provided with a capillary opening. If this claim were strictly enforced it would mean that only their product could be used; for the utility of ethyl chloride is inseparable from a container with a capillary opening. There should be some remedy for this.



Somnoform Inhaler, shows transparent face-piece.

A detailed statement concerning the expensiveness of ethyl chloride has been purposely omitted. Its cost will prevent its very general use. Yet it is useful and when the expense is of no importance, in selected cases it will be found valuable.

This is not the time to do more than merely mention the use of ethyl chloride in obstetrics. It has been my privilege to see its great value demonstrated in some half-dozen deliveries. The patient is promptly relieved of her pain; the labor is not interfered with, in one case it seemed to be materially hastened; there is no unusual bleeding; and best last, there are no narcotized babies. I do wish that someone who has the opportunity would give us a report on, say, one hundred cases.



Section of Somnoform Inhaler. L is gauze about the spring holder S.

In conclusion I have but a little to say concerning "Somnoform," and less about ethyl bromide. The latter has never been used much in this city except in the services of Dr. Geo. R. Fowler. I have tried it some, by both the drop and the mass dose. It has acted well. Its disagreeable post-anesthetic smell—odor even is too nice a word—when it is present is a very great objection to its use. "Somnoform," on the other hand, has had more of my attention. Some preconceived objections as to its dangerousness have been dispelled by frequent demonstrations to the students in the dental room of the Polhemus Clinic. We have been very much pleased with the rapidity of the narcosis, its depth and continuance. One case showed signs of some depression. She was a middle-aged Italian. The usual adult dose of 5 c. c. was placed within the bag, and a deep narcosis produced. She remained unconscious for fully two minutes. The respirations and pulse were but slightly changed. She became somewhat pale, broke out in a sweat and vomited profusely. It took her about five minutes more to recover herself. The full stomach, no doubt, had most to do with her condition. Yet in dispensary practice there is no opportunity for preparation. All the other cases have been done well, probably because I do not demonstrate the anesthesia for its own sake, but to obtain only the analgesia which the dental operator requires. I have not yet seen my way clear to use "Somnoform" for any continued narcoses, nor do I know of any one else who has done so. But in primary anesthesias our experience has been very satisfactory.

Permit me to express the hope that these agents will come to be more widely used. They are not to be employed as a routine procedure—no one agent should. Surely it is not expecting too much that some knowledge of them should be permitted to hospital workers; indeed, it should be insisted on by the general profession that hospital men should be able to be in a position to pronounce a judgment in this matter. It is they particularly, if not only, who will have to work out the problems of anesthesia; and they should be made conscious of the intelligent criticism and sympathetic support of all who strive for the perfecting of the whole momentous science of which anesthesia is a part.

ETHYL CHLORIDE IN ORAL SURGERY.

RICHARD C. BREWSTER, M.D.,

BROOKLYN-NEW YORK.

THE need of a safe anesthetic for use in oral surgery has long been felt. Many things have been tried; *nitrous oxide gas,* while effective and pleasant to take, still carries with it to the patient the dread of unconsciousness and a fear of unknown complications. *Cocaine,* while effective if properly handled, has claimed its victims, and its administration in sufficient quantities to produce a complete anesthesia in the mouth has been at times accompanied by grave disaster. Combinations of *eucaine*, while safe, are not as effective. Frequently a weak, sensitive, sickly patient, who is entirely unable to withstand the pain of excavating and preparing a sensitive cavity, is unwilling to take a general anesthetic, and we are obliged to resort to some one of the local anesthetics. Usually we find in *ethyl chloride* all that is to be desired. Its application will not produce general anesthesia in the slightest degree, yet, at the same time, it anesthetizes the operative field to such an extent that the cavities of the teeth are prepared for filling absolutely without pain. In this way neurasthenic and extremely sensitive patients may be operated upon rapidly and painlessly.

Many think that the shock due to the low temperature produced by ethyl chloride is an objection; but the shock is very slight, and the ease with which the preparation of cavities can be done, and the effect on the patient, who feels nothing whatever of pain, are certainly to be considered.

The technique consists, first, in placing a napkin around the effected tooth in such a way as to prevent the ethyl chloride from getting into the throat; second, by using the saliva ejector the mouth is kept dry.

Or, a rubber napkin, i. e., rubber dam, may be used, and made to cover several adjacent teeth as well as the face, nostrils and fauces. By this means, the patient can be protected from the fumes if they be offensive to him, and any depressed portion of the dam will collect the ethyl chloride, which can be removed by the saliva ejector.

Sufficient rubber is cut away to expose the affected tooth and adjacent gum. When thus exposed by cloth or rubber napkin, the ethyl chloride is thrown from a fine pointed glass tube first on the adjacent gums and teeth, and then directly into the cavity, repeating the circle many, many times. The length of time this shall be continued is a matter of experience and judgment, but do not continue it on the *gum* after it has become white or frozen, but rather directly into the cavity.

The freezing of the gum, because of its close proximity to the pericementum, is a criterion indicating that the limit of its usefulness has been reached, and further application must be made directly into the cavity, which need be but for a second or two. After this the cavity can be excavated and drilled with the dental engine without producing pain.

The fumes of ether, when allowed to be inhaled, will do much to promote the success of the operation; in fact, I frequently use ethyl chloride for the extraction of loose roots and teeth, lancing the gums, opening an abscess, removing a sequestrum of bone, or for the removal of slight necrosis.

Much has been said regarding the liability of devitalizing the dental pulp by this freezing process, but, so far as I am aware, no pulp has ever died from this operation, under my hands, and I have never heard of devitalization of a pulp from this cause.

Ethyl chloride comes under the head of anesthetics, and is therefore liable to meet with the same resistance from the patient, and its usefulness is limited to the number of patients who are willing to take it; that is, willing to withstand the two objectionable features which are, first, the slight shock produced by spraying a cold liquid on sensitive dentine, and, second, the odor of ether.

To a patient who can be controlled by quiet arguments, these objections can be overcome, for they are really slight compared to the pain produced by cutting into sensitive dentine.

When assembling the instruments for the operation, a quiet and continued recital of the usefulness of this process can be kept up, incidentally the tube opened, and the spray allowed to play upon the hand of the operator; then, by way of explanation, ask the patient to allow the spray to play upon his hand, that he may see how harmless it is. This helps somewhat to allay his fears, and usually at this point a trial may be made, which always ends in success. But few patients require this careful attention.

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Further information on advertising page 4

BROOKLYN POST-GRADUATE MEDICAL SCHOOL.

During the year 1906 the Brooklyn Post-Graduate Medical School was incorporated under the laws of the University of the State of New York. The officers of the Corporation are as follows: President, William E. Butler, M.D.; Vice-President, William A. Stokes, Esq.; Secretary, Lefferts A. McClelland, M.D.; Treasurer, Fred. C. Meacham, Esq.

For many years the vast facilities for learning offered by most of the hospitals of Brooklyn have been confined to a few, and although the various members of the medical profession who have occupied important positions upon the staffs of many of our hospitals have given clinics and have presented to a limited number of physicians an opportunity of studying their cases, still no systematic plan for giving post-graduate instruction has been developed.

Brooklyn is a borough of a million and a half inhabitants, many of whom, in case of accident or disease, seek treatment in the wards and dispensaries of our hospitals; and the material is inexhaustible. The founders of the Brooklyn Post-Graduate Medical School are attempting to organize a course of instruction which, in many ways, is similar to that practiced in London, England. The headquarters of the School will be the Williamsburgh Hospital, situated on Bedford Avenue and South Third Street; here much of the work will be carried out. The hours of instruction to be given in other institutions will be so arranged as not to conflict with each other, in order to give each student an opportunity to observe a large variety of clinics without much loss of time.

A course of great importance will be that in contagious diseases by Dr. John W. Van Deusen, at Kingston Avenue Hospital in Brooklyn. Probably no hospital in the United States gives treatment to a larger variety of such cases. The course in hospital management and economics is an entirely new feature, and it is hoped that much good may come through it.

During the first years of its existence the school will need all of the support and kindly criticism of its friends; let those who doubt be not too hasty in their judgment, but wait patiently and encourage the leaders in their work.

THE LONG ISLAND SOCIETY OF ANESTHETISTS.

This Society, which has become active in the last year, was organized in January, 1906, by the visiting anesthetists of the various hospitals of Brooklyn. Dr. William C. Woolsey was elected President; and Dr. Erdmann, Secretary, for the ensuing year. Meetings are held every three months at some one of the hospitals, and the various phases of anesthesia are discussed, and clinics are held for demonstrating apparatus and new anesthetics. Usually the internes from six or eight hospitals are represented at the meetings. A great deal has already been accomplished in systematizing the methods of anesthesia in the various hospitals, and in acquainting the younger internes with the advances in anesthesia, as well as the importance of the careful administration of anesthetics.

NINTH ANNUAL MEETING OF THE ASSOCIATED PHYSICIANS OF LONG ISLAND.

Saturday afternoon, January 19, 1907, at 3.30 P. M., the Associated Physicians of Long Island held their ninth annual meeting at the Library Building of the Medical Society of the County of Kings. As was expected, the meeting was one of unusual interest to the medical profession of Long Island because of the inauguration of two notable works: its own Medical Journal, and the preliminary reports on the prevalence and distribution of Typhoid fever, Tetanus and Malaria on Long Island. Each report was received and carefully discussed by the members present, and will form a basis for more extensive investigations of these diseases on Long Island. The meeting was followed by a dinner at the Oxford Club, which was quite informal in its nature and was well attended.

ANESTHESIA.

The papers which appear in this number on the subject of anesthesia, all deal with different phases of the subject. Probably, if we should ask most of the surgeons of Long Island what anesthetic they considered the safest and the one most universally used by them, they would, with few exceptions, tell us Ether. This certainly is a deplorable fact, and the Long Island Society of Anesthetics are trying to educate the profession so that they may be able to select the best anesthetic to suit each particular case. Even they have overlooked a number of important factors: first, the use of Spinal Analgesia, which is extensively used by a few, and the advantages of which are very marked in selected cases. The second is the use of Cocaine in a warmed normal salt solution in the proportion of 1 to 500. Those who have had experience in using this solution find it the safest anesthetic in all cases of strangulated hernia; in all cases of inguinal hernia, and in many cases where operative procedure involves the extremities. Dr. Bodine, of New York, quoting Dr. Matas, makes this very clear. The giving of an anesthetic in operations upon the mouth and tongue has always been fraught with danger to the patient and annoyance to the operator. Dr. McHenry, of Cleveland, presents a new method of giving anesthesia in these cases, which no doubt will save the lives of many patients if it is properly carried out.

Many have tried to use cocaine in major and minor operations, and have failed. But this is not the fault of the anesthetic; it is rather the faulty technique of the operator. Frequently it happens that a surgeon using a one or two per cent. solution of cocaine cannot even make the skin incision painless, while it is a fact that if a fifth per cent. solution is properly injected, any skin incision can be rendered absolutely painless. Dr. Bodine in his paper instructs us in the proper technique.

TRANSACTIONS

OF THE

ASSOCIATED PHYSICIANS OF LONG ISLAND.

DISCUSSION OF DR. WOOLSEY'S AND DR. ERDMANN'S PAPERS.

DR. PAUL PILCHER said that the time wasted in giving an anesthetic should be spoken of. It was a question which he had studied considerably during the past five years and had kept charts showing the time from the starting of the anesthetic until the operation was commenced. The average time was from 15 to 20 minutes. He did not know whether his experience had been unfortunate, but he thought a good many men would bear him out in that, and he believed if the anesthetist, in conjunction with the surgeon, would pay more attention to not wasting time with the anesthetic, it would be of great importance. Kocher, of Berne, the speaker said, has studied this question very extensively, and he solves it in this way: He uses bromide or ethyl to initiate his anesthesia, and continues generally with ether. In the case of goitre that Dr. Woolsey spoke of, when Kocher has to give an anesthetic, which he very seldom does, he gives ether. His method is this: He brings the patient into the operating room, has the preparation done without an anesthetic (and that can usually be accomplished) and when everything is ready, when all the surgeons have scrubbed up and put on their gowns, the field of operation prepared, and the instruments and everything ready to begin the operation, then he takes his syringe containing one per cent. solution of cocaine and injects it in the skin along the line of the incision. Everyone who has had much to do with cocaine knows that you can make your incision almost immediately after the injection has been made into the skin, and that the tissues which come directly beneath the skin are not very sensitive. At the same moment that he commences his incision, the mask is put over the patient's face, bromide of ethyl given, and in 40 to 60 seconds the patient is completely anesthetized. That can be done with ethyl chloride, which is here supposed to be safer. In that way it saves 15 minutes of anesthesia, and when he gets into the deeper tissues, and the operation is well under way, the patient is relaxed and the operation is proceeded with. That is a very important item, the speaker thought, as in the ordinary operation for appendicitis, we will say, if the surgeon takes twenty minutes to do the operation, the patient is saved an additional 20 minutes of preliminary anesthesia.

The speaker said that he had observed ethyl chloride being given, and it certainly seemed to him a very fine and safe anesthetic.

The choice of a general anesthetic, Dr. Pilcher thought, should be left entirely to the anesthetist. The surgeon simply remarks when there is not enough relaxation, or the blood is in such a condition that he fears the patient is too deeply anesthetized.

DR. G. MORGAN MUREN desired to speak of two points that had been left out by the essayists. One was the selection of the anesthetist and the other was the fee. The habit of having our anesthetics given by some friend who has recently graduated, perhaps without hospital experience, he thought a pernicious one. These men are not competent to give anesthetics, and he knew this because of his own experience as a new interne, when he had given two anesthetics as a student, and nearly killed the first patient. The speaker thought the specialist in anesthesia should be encouraged and called in more frequently than he is, and he also thought that the idea that five dollars is a good fee for an anesthetic is to be discouraged. A surgeon getting several hundreds for an operation ought to give the anesthetist $25 or more.

Dr. Pilcher spoke about speed. That appealed to him because most of his surgery is on old men, and if it takes 20 minutes or longer to get them under the anesthetic before the operation is commenced, one gets anxious about them.

The speaker thought there are some people who suffer a good deal in the hands of the new interne who wants to crowd his ether and get his case in the operating room in a hurry, and he thought surgeons should be careful of this, too.

Dr. James C. Kennedy said that he wished to confirm some of the statements about ethyl chloride; in a hospital that he was connected with, they had used it 500 times preliminary to ether and had not had a single death. The patients go under the anesthetic in a very short time—five or six deep inspirations and the muscles are relaxed; the ether is then put on, and from the time that the chloride of ethyl is given until the patient is thoroughly anesthetized, averages about eight minutes. He proposed to use that anesthetic, because he had found nothing in the past as good, and he proposed to use it until something better came up. He had been using gas, but found that chloride of ethyl is safer and cheaper.

Dr. T. R. French said that we must not forget to make a distinction between the methods of administering ethyl chloride by expert and inexpert anesthetists. Luke reports twenty-two deaths from the use of ethyl chloride, and thinks we ought to discourage the indiscriminate use of the drug. Dr. French said farther, that it was a matter of considerable gratification to him to note the increasing interest in the various methods of administering general anesthetics, and also to note the development of the art into a special department of medicine. The gentlemen who had just read papers, and others like them, were not only qualifying themselves to give expert assistance at operations, but through their connections with hospitals, as many in the audience had occasion to know, they were training the interne anesthetists as perhaps they had never been trained before.

Dr. George McNaughton, speaking of ethyl chloride in the cases of nephrectomy and nephrotomy referred to in Dr. Erdmann's paper, said that the patient was so excessively weak and in such a miserable physical condition, that it was a question whether they should give an anesthetic. In both cases it was given with entire satisfaction, and the patient came out of the ether in a manner quite unusual after an anesthetic.

The speaker wished to endorse what was stated by Dr. Pilcher, that the choice of the anesthetic should be left to the gentleman giving it, particularly if he has paid some attention to it, and then the surgeon may cease to have any concern while it is being administered. On the other hand, if it is necessary to have the anesthetic given by an amateur, it certainly would be necessary for the surgeon to direct. The speaker said that he makes use of nitrous oxide in the office frequently, and it is an efficient anesthetic. Where thorough relaxation is necessary, it is often disappointing.

He has always been inclined to continue any technique that has been satisfactory, and hesitates a little bit in changing the anesthetics we have been using satisfactorily so long; but when such statements and such proof come before us, as we have listened to today, we can not help adopting some of the newer methods and becoming young again, if possible.

TRANSACTIONS

OF THE

BROOKLYN SURGICAL SOCIETY.

Regular Meeting December 6, 1906.

The President, O. A. GORDON, M.D., in the Chair.

WHY DELAY OPERATION FOR APPENDICITIS?

A paper with the above title was read by DR. THOMAS B. SPENCE.

CARCINOMA OF THE MALE BREAST.

DR. RUSSELL S. FOWLER presented a man from whom he had removed a carcinoma of the breast. The patient was 45 years of age. Eighteen months before the operation he was hit by an iron wrench in the neighborhood of the nipple, and a few days later noticed a lump there. He received various medical treatments for this until the speaker saw him, when he advised operation.

The rarity of the disease in the male breast and the fact that in spite of the growth being in the neighborhood of the nipple the glands along the subscapular vessels were enlarged, were the points of interest. The operation was two months ago and required an enormous dissection.

OSTEOMYELITIS OF TIBIA.

DR. JAMES M. DOWNEY, reporting this case, said that it showed the relation between pneumonia and infected bone disease. The patient, a girl 12 years of age, came under his care October 17, 1904. Her previous history was negative. At the time stated she was ill with pneumonia. Ten days after the onset of the disease she complained of pain in the right leg along the tibia, which was worse at night. She had recurrent chills, sweats, headache and inability to bend the knee.

Examination of the left leg showed that it was swollen from the knee to the ankle, more tender over the middle portion of the tibia, but more enlarged near the head of the bone. Temperature 103°; Pulse 130. Twenty days after recognition of her pneumonia and seven days after leg symptoms, operation was performed, consisting of free incision, curettage and drainage of bone marrow. About one-third of the tibia was removed. The limb was encased in a splint and free drainage provided for. For the following three weeks the temperature ranged from 99° to 100.5°, with free discharge of pus. Her general health improved and she suffered less pain. At the end of the fifth week small fragments of bone came away, and on further examination the speaker found a very large, loose piece, which could not be removed without enlarging the incision. The temperature was higher, sweats and chills returned; another operation was performed and a large sequestrum was removed. The entire tibia had disappeared with the exception of the epiphysis and a strong involucrum. It was drained and dressed with plain gauze, the patient making an uninterrupted recovery, the tibia filling up in five months.

OSTEOMYELITIS OF FEMUR.

DR. JAMES M. DOWNEY related a second case of a boy, four years old, who gave a history of having fallen down stairs and who had apparently recovered without receiving any serious injury. One week later he developed a pneumonia, and ten days after the onset of the disease Dr. Downey was asked to see the case on account of the condition of his right thigh and knee which were very painful, especially at night. Chills, sweats and thirst were constant symptoms.

Examination showed the right thigh swollen from the knee to the inguinal fold, very tender and painful on manipulation, not very red, some slight œdema, knee flexed and swollen, painful on motion. Temperature 102° per rectum; pulse 140. He had considerable bronchorrhea with all kinds of rales.

Operation was advised, and as the site of infection is usually at the epiphyseal end of the diaphysis, the incision was made accordingly. About four ounces of pus escaped. There were found three inches of necrotic bone, through the centre of which there was an opening leading down to the medulla. This was enlarged and free drainage instituted. The limb was dressed and put on a splint. It is now two weeks since the operation, and during that time his temperature varied from 99° to 100.5°. His general health has improved, and pain is very slight except on motion.

The speaker stated that his reasons for reporting these cases were: in the first place it is now considered better surgery to remove the entire shaft of bone to the epiphyseal line in acute infectious osteomyelitis, where you have two bones, one of which may act as a splint. He believed that the less thorough removal of bone in the second case is the proper treatment, as here there is only one bone, and, consequently, no other bone to act as a splint.

Dr. James P. Warbasse thought these very important cases, and that surgery is going to undergo very radical changes in regard to their treatment. It is an unfortunate thing, he said, that most of them come to us after a wide destruction of the bone has taken place; that was the case in these reported by Dr. Downey. We see these patients after there is a pretty complete infection of the bone, because a very unfortunate practice exists among physicians of temporizing with them. If there is any class of cases which should not be temporized with, it is these cases of acute bone infection. We see the family physician watching the case, noting an increase of temperature, treating it with local applications, and finally, when the temperature becomes alarmingly high and the pain extreme, a surgeon is sent for. Very often the cases come to us in the hospital even after infection of the periosteum has taken place, which means a penetration of infection through the bony structure and the development of periosteal abscess. Such a condition Dr. Downey found in the last case he reported. We are not surprised when he states that there was a wide destruction of bone here, and he must expect to do subsequent operations in order to affect a cure.

The speaker said he thought it behooves us to impress upon the general practitioner the importance of early operation in these patients. The moment that infection of the medulla of the bone is recognized, operation is indicated. He should not defer until there are violent local symptoms. Even when the pain is slightly localized, the surgeon may be able to discover a point of tenderness somewhere along the bone, and there he should expose the medulla. Before he is able to discover infection beneath the periosteum, disease of the bone may be very pronounced. The medulla should be opened by the trephine or chisel, and if that is done the frightful destruction of the whole epiphysis may often be avoided.

We have conducted a campaign for early operation in gall-bladder disease; we have conducted a campaign for early operation in appendicitis; and in both of these he believed we have frightened the general practitioner, possibly, to an unwanton degree; but in advocating early operations upon osteomyelitis, there is no fear that we develop in the general practitioner too great a degree of alarm with regard to the seriousness of the disease and the importance of early operation.

RESECTION OF THE ULNAR NERVE FOR PAINFUL STUMP.

Dr. Mathias Figueira reported the case of a hospital nurse who had her arm removed at the middle third after an infection of the hand. After the amputation she developed pains in the stump, which continued after the wound healed, and up to the time she came under his care a year afterward. When he examined her she had a most characteristic ulnar neuralgia. She complained of pain, referred to the nail of the little finger and the finger next to it. This being worse at night, it made her very miserable. He resected the ulnar nerve as it leaves the artery and passes to the space between the internal condyle and the olecranon, and she got entirely well. The reason he reported this case was, that for one year the patient underwent various treatments without relief.

OBLITERATING APPENDICITIS.

Dr. Figueira exhibited an appendix which he had removed a week previous. The patient suffered from severe symptoms of appendicitis for two years. The attacks came on some times at intervals of a month, some times weeks apart, but made him very sick. During the last attack he was confined to bed for a week.

Although the speaker found no adhesions in this man, he did have difficulty in finding the appendix. When brought into view, it was found to be a very small, atrophied organ; the end had been formed into a fibrous cord and a probe could not be introduced further than ¼ inch. He had no doubt, if this had not been removed, and a mass of adhesions and inflammatory product had formed, it would have been one of those cases in which the appendix could not be found.

RECURRENT ATTACKS OF CHOLELITHIASIS.

Dr. Mathias Figueira, presenting the patient and gall stones in this case, said that the man had suffered from attacks of gall stones for one year. The attacks came at frequent intervals. During treatment he would be entirely free from disturbance, but if he stopped his medicine or made an error in diet the attacks would come back. He operated on him and the man recovered.

The speaker thought that cases of gall stones could be divided, clinically, into three classes. *First* the common cases, with medical, hygienic and dietetic treatment get well, the attacks get milder, the intervals are longer and gradually the patient gets well. A *second* class is represented by this patient, in which in spite of all treatment attacks go on, at intervals the patient cannot attend to his business, and here, after a proper length of treatment, an operation is indicated. The *third* class of cases are the inflammatory and septic ones, and here there is no room for delay. These are cases for immediate operation.

The first and second class do not have adhesions or inflammatory deposits or any of the conditions that surgeons speak of as a result of neglected operation. Dr Figueira thought that in cases of the first class we are not entitled to operate at all, and he believed that the man who operates in this class of cases, the man who, the moment a patient comes with a pain in the region of the gall bladder reaches for his knife, is as much to blame as the man who delays in the septic or inflammatory cases.

He considered that, in cases of the second class, it is proper and right to treat them by medical, hygienic and dietetic treatment for a moderate and proper time, and when it is found that the disease does not yield, and the attacks do not stop, then it is time to operate.

SECONDARY HEMORRHAGE FROM EXTERNAL CAROTID.

Dr. Mathias Figueira reported a case in which hemorrhage occurred after ligation of the external carotid. This secondary hemorrhage, he said, is quite rare, 2 per cent. representing the frequency of the occurrence. The secondary hemorrhage took place after extirpation of the external carotid (Dawbarn's operation) for relief of malignant disease of the root of the tongue and throat.

The patient was a man of very intemperate habits and the subject of secondary syphilis. When the man came to the notice of the speaker the disease had existed for over a year and was beyond the reach of any curative operation. Dr. Figueira decided, as a last resort, to perform Dawbarn's operation, and he did it on the right side, the side of the disease. He exposed the artery in the common way and ligated it about one-fourth inch beyond the superior thyroid artery, tying the artery with two ligatures. After dividing the artery he took the stump and dissecting it up from the sheath, ligated the branches as he went along. Dawbarn advises to expose the artery all along its length, to litigate the branches as you get to them, and then dissect the artery up. The speaker did not use paraffine injection, but twisted the terminal arteries.

In the dissection he came upon several broken down lymphatic glands. In spite of all care the wound became infected, and drainage was used. The place where the drain was inserted never healed up, although the rest of the wound did so. Four weeks afterward the man left the hospital, and shortly after died from a sudden gush of blood from drain opening, evidently a secondary hemorrhage from the external carotid.

Dr. Samenfeld stated that he had attended this patient from the time he left the hospital, dressing the case every other day. He found a sinus a half days later. He found a sinus a half inch long behind the angle of the inferior maxilla, running downward for an inch and a half. A foul smelling discharge came from this sinus. He used a cotton tipped probe, cauterizing the sinus with carbolic acid, afterwards neutralizing with alcohol, and then carefully packed with iodoform gauze, so as not to injure the vessels. Six o'clock on the evening of March 11th, he was called to see the patient, and on entering the house found him lying on the floor in a condition of extreme collapse, with a stream of bright blood pouring from his neck. The man died in a few minutes.

Dr. Lewis S. Pilcher said there were two points involved in these reports of Dr. Figueira, that might invite an exchange of experiences. One is suggested by the question that had been asked and the reply Dr. Figueira had given as to his personal experience, as to the effect upon the advancing growth of malignant disease of the head, face and mouth, from the excision of a considerable portion of the external carotid artery and its branches, and the other is as to the frequency with which secondary hemorrhage is encountered at the present day.

The speaker's own experience had been the same as Dr. Figueira's with regard to the effects of the excision of the external carotid artery. He had had occasion to do it quite a number of times, but, as far as he had been able to judge, without any advantage whatever as regards its securing benefit to the disease for which it had been performed. He had done it a number of times also in the course of extensive operations for the removal of operable growths and, in the later history of these cases, he did not recollect that any advantage could be referred to the fact that this attack upon the artery had been made.

In one of these it had been his misfortune to have a secondary hemorrhage, and immediate death as a result of the occurrence. In this case, a resection of the lower jaw for carcinomai nvolving the removal of a very considerable amount of tissue in the neck, which was involved, and the removal of a considerable portion of the artery the septic infection of the wound, opening widely as it did into the mouth, was unavoidable; and in the beginning of the second week in the middle of the night, a sudden gush of blood took place, and before anything could be done the man was dead.

As an example of secondary hemorrhage, it was a typical one. Forty years ago, when he began to do surgery, it was the custom to tie arteries with a silken thread, which was brought out of the lower end of the wound, and tugged on from day to day until it came away. Sepsis was always present, suppuration was unavoidable and secondary hemorrhage was a very frequent occurrence, but for the last twenty years he recollected but two cases of secondary hemorrhage after a surgical operation. One was the case he had just mentioned, and the other was a case of hemorrhage from the renal artery, taking place after removal of a kidney. In this second case there was no infection; it was not due to a septic process, but was evidently due to the failure of thrombotic formation and occlusion of the artery by the natural processes of repair, which he expected to take place, and which almost invariably does take place in a wound that is free from advancing septic conditions.

Dr. James P. Warbasse thought many more cases of secondary hemorrhage occur in our experience, and in Dr. Pilcher's experience, too, at the present time than the latter implied. Dr. Pilcher could recall only two cases in his experience. The speaker thought he could remind him of more than that, but they were not the old-fashioned secondary hemorrhages such as occurred in Dr. Figueira's patient, which was due to infection. He knew that he and others had had the unpleasant experience of having intra-abdominal hemorrhage occur from pelvic vessels from badly tied ligatures, or from some other reason of that sort, and give rise to hemorrhage after the patient's arterial tension had reached a sufficiently high point to crowd out clots or to overcome the hemorrhage-controlling surgical appliance. These are the cases of secondary hemorrhage which we have now, and he thought that they still occur and are not so infrequent. But still they are a very different type of hemorrhage from that of secondary hemorrhage due to infection, which was the *bête noir* of surgeons of forty years ago.

Dr. Lewis S. Pilcher said that Dr. Warbasse's point was well taken, but he thought the cases of hemorrhage he referred to, and which occur with all surgeons not so very infrequently, belong to a different class, which he had not in mind when he was speaking. He thought it should be called consecutive rather than secondary hemorrhage.

CONGENITAL DEFECTS OF THE BONES OF THE FOREARM.

Dr. Charles H. Goodrich presented a girl 13 years of age, who had congenital or acquired deformities of both forearms. In this instance Dr. Eastmond had made very excellent plates. The cause of such a forearm might have been a defect in development, and it might have been due to very early malnutrition, perhaps a rachitis, but probably a congenital defect in bone formation as the defect was practically symmetrical.

RUPTURE OF THE URETHRA.

Dr. Paul Pilcher reported the case of a man, 57 years old, who, eleven days before admission to the hospital, was crushed between a trolley car and a wagon; he was not rendered unconscious, and was carried home. Has been walking around ever since, but has complained of increased frequency of urination, being able to void only small amounts containing blood. He complained of pain in the hypogastric region; has had no chills, but had felt feverish.

He has been conscious of an enlargement in the lower abdomen, varying in size from time to time.

On admission to the hospital, he presented the general appearance of a man suffering from sepsis; eyes staring, mentally stupid, somewhat emaciated, very foul breath, tongue heavily coated and dry. Pulse regular, good tension; arteries sclerotic; a few crackling rales at the left apex of the lung and at the inner end of the spine of the right scapula.

Abdominal examination revealed a large cystic tumor, occupying the lower half of the abdomen, somewhat irregular, especially on the right side; hard, fluctuating, dull on percussion. There was an area of ecchymosis in the right groin. Reflexes markedly exaggerated.

On admission, temperature 100.4; pulse 96; respiration 26. A catheter was passed with some difficulty into the bladder and removed 38 oz. of bloody urine, alkaline; specific gravity, 1.017. After the urine had been removed from the bladder there still remained a small globular tumor, beginning 1 inch above the symphysis, extending upward and slightly to the right for a distance of 3 inches. He also gave a history of some blood in the stools. He had suffered from singultus.

Operation. — Incision over most prominent portion of the globular tumor, revealing a sac in front of the bladder filled with foul pus and urine; walls of the sac ½ to 1 inch in thickness, infiltrated and inflamed. A rupture of the urethra was discovered at the junction of the bladder; this was closed over with silver gut sutures, obliterating the connection between the bladder and the sac; the sac was then drained and left open.

The patient died within 48 hours, of edema of the lungs.

Remarks.—This case of rupture of the superior portion of the urethra is interesting, first, because of the localized extravasation; second, the position of the rupture just at the junction of the bladder and urethra; and third, from the fact that the patient presented himself for treatment *eleven* days after the injury.

TRANSACTIONS

OF THE

BROOKLYN PATHOLOGICAL SOCIETY

EDITED BY CLAUDE G. CRANE, M.D.

472d Regular Meeting, December 13, 1906.

The President, R. W. WESTBROOK, M.D., in the Chair.

OF WHAT SERVICE IS THE CLINICAL PATHOLOGIST TO THE CLINICIAN.

A paper with the above title was read by DR. FRED'K E. SONDERN, of New York.

THE LABORATORIES OF BROOKLYN HOSPITALS.

A paper with the above title was read by DR. THURSTON H. DEXTER, of Brooklyn.

PYONEPHROSIS AND RENAL CALCULUS.

DR. RALPH H. POMEROY, presenting a specimen of pyonephrosis, gave the following history of the case: Mrs. A. S., whom he saw first on November 28th was referred to him by Dr. O'Reilly for an abdominal tumor, which he presumed arose from the kidney. The patient was 50 years old; married; two years past the menopause; last child 14 years ago. Had two illnesses of no consequence; has always had some leucorrhea.

The speaker stated that there were several interesting points about the history of the case aside from the specimen. Her first symptoms were two years ago, when she had passed blood in the urine, but without pain. Ever since that time she has had "milky urine." For several months prior to February last she had various attacks of slight pain in the right side accompanied by nausea. The pain was not excessive, and the main disturbance was the nausea. Since that time she has worn an abdominal belt with pad, and had no attacks of pain since then, merely a sensation of discomfort if she left off the belt. She has had migraine attacks and is generally nervous, but otherwise in good health. She has had hot flushes, but no chills. There has been absolutely no bladder discomfort. Her own statement was that she could hold the urine for 24 hours, if necessary.

Abdominal examination revealed a mass in the right lumbar region larger than a cocoanut; no sensitiveness to pressure at any point. Catheter specimen of urine from the bladder contained large quantities of pus; temperature normal. He made a general diagnosis of pyonephrosis with the possibility of a stone as the cause, and she went into the Brooklyn Hospital five days ago for observation.

The troublesome feature of the case was, that he found it impossible to catheterize the ureters. On two successive days Dr. Buist, Dr. Dickenson and himself made efforts a half hour at a time, without an anesthetic, both in the knee chest and Trendelenburg postures, and were unable to catheterize the ureters. The presence of two kidneys, however, was fairly demonstrated by the use of a segregator.

On December 13th he operated by a König incision and eliminated the kidney mass, which was taken out entire without rupturing it. There had been a considerable perinephritis, but it was possible to separate the entire kidney. It contained 20 ounces of pus and measured 10 x 5 inches. The stone was about the size of the distal thumb phalanx.

CARCINOMATOUS DEGENERATION OF UTERINE POLYP REMOVED FROM PATIENT 72 YEARS OLD.

Dr. Eliza M. Mosher presented the specimen. The patient had had intermittent symptoms of uterine polyp for twenty-four years. Hysterectomy was performed, and was followed by complete recovery.

Pathological Report. Upon opening the uterus a pedunculated tumor was found on its posterior wall near the opening of the left Fallopian tube. The growth is round, 6 by 7 cm. in diameter, filling the entire uterine cavity, and is soft to the touch. Its center is the seat of small hemorrhages and is very much softened. At the periphery there are white areas resembling the ordinary myoma in appearance. There is one small, hard nodule, 1 cm. in diameter, near the right tubal orifice. The rest of the uterine mucosa is smooth, pale, and shows no evidence of softening or of a new growth.

Both tubes and left ovary present, and normal in appearance. A small cyst, 3 cm. in diameter, is present in the broad ligament near the fimbriated extremity of the left tube.

Micr. Exam. Uterine wall and mucosa. Shows no abnormality.

Tumor. Medullary carcinoma. There is marked edema and some hemorrhagic infiltration.

EXHIBITION OF KILLIAN'S INSTRUMENTS FOR THE DETERMINATION OF TRACHEAL STENOSIS, ETC.

Dr. A. C. Howe stated that in Freiburg cases of goitre develop to such an extent that tracheal stenosis is a very common thing, making operative interference frequently necessary; imperative often.

In former days, the greater portion of the tumor was frequently removed, without relieving the tracheal stenosis. The necessity for determining the exact point of compression of the trachea necessitated the development of exact means of diagnosis. The X-ray photographs were often very unsatisfactory, as pressure from behind forward, or pressure well down into the thorax, could not often be determined, and unless the conditions were very favorable, a skiagraph did not show what was necessary. The necessity of finding some way of exact diagnosis for these cases led Professor Killian to develop the method of tracheoscopy, which is used in all cases previous to operation, so that no case is operated on in Freiburg without being X-rayed and without first having the diagnosis made by tracheoscopy. The technic has been developed there to such an extent that the matter of passing a tube into the trachea does not necessitate an amount of cervical dislocation of the spine that is commonly supposed. Tracheoscopy there is performed with comparatively slight discomfort to the patient and absolutely no unpleasant after effects.

The method consists in exposing the glottis by means of a tubular spatula. When the glottis is clearly in view, a longer or shorter tracheal tube is passed through the tubular spatula directly into the trachea and the spatula removed. The tube is then passed downward into either branches, as far as conditions necessitate. This work is done entirely with cocaine. In children and very nervous patients, a general anesthetic is used. Local anesthesia is usually all that is necessary.

Sometimes a more direct method is used by means of a longer spatula, without using the longer tube. This is for exposure and investigation of the upper part of the trachea; it is passed between the vocal cords and the whole portion of the trachea is brought very clearly into view. The lower portions of the trachea must be investigated with one of the longer or shorter tracheal tubes; in passing the tracheal tubes lower down in conditions of obstruction, the slit in the low end of the tube is thrown open so that air can pass in. These tubes are of various lengths and sizes for children and adults.

The speaker said that while he was at the clinic a short, thick-necked patient came there, a man about fifty. He had been suffering with a stenosis, so that he was cyanosed considerably all the time. Three years ago an enormous goitre had been removed because of tracheal stenosis, and he had been entirely relieved, but now after three years there had been a recurrence of the stenosis. Although no goitre could be found on examination, yet by tracheoscopy it was found that a small supernumerary goitre was producing the stenosis from behind the sternum and ribs; in looking down there you could see the trachea flattened in the left anterior quadrant. The stenosis was entirely relieved by operation shortly after.

When Prof. Killian found that he could get in the upper part of the trachea, it needed only a little pushing to get into the lower trachea and bronchus. It is possible to go down in the right or left bronchus, even to the second or third divisions.

This suggested the possibility of removing foreign bodies, so that foreign bodies in the form of needles, collar buttons, pins and all sorts of things have been followed down into the bronchus and removed. At the time Dr. Howe was in Freiburg, twenty-two foreign bodies had been removed from the bronchial tubes without a single failure. Of course, that suggested many other things in which bronchoscopy could be used, such as abscess of the lung and bronchiectises, where it is necessary to determine the direction of the pus. This can be determined by the bronchoscope, and the surgeon directed in his work of cutting down on the pus cavities. That had been done a number of times.

Case I. A Russian army surgeon came to the clinic with a history of being treated for lung trouble for three or four years. There was absolutely no air in the lung. Under examination it was found that the main bronchus of the left lung was shut off by a stricture of specific origin and the lung was entirely out of commission. That diagnosis was made by means of the bronchoscope, and he was under treatment two or three times a week. The bronchial tube was passed down to the stenosis, and then it was dilated, so that after three weeks the lung was fully distended and apparently in full commission.

The speaker presented an esophageal tube, which is used for the location and removal of foreign bodies in the upper part of the esophagus. Last spring a patient had been referred to the speaker, who had swallowed a fish bone which lodged in the upper part of the esophagus. An esophageal probang had been used by the referring physician to push the bone down into the stomach, but instead it had perforated the wall of the esophagus and the following day penetrated one of the large blood vessels, and forty-eight hours afterward the patient bled to death.

If a foreign body is further down, a longer esophageal tube can be passed down almost to the cardiac orifice. By means of the same tube the courses of esophageal stenosis can be readily determined. One of the most perfect pictures of epithelioma Dr. Howe had ever seen was in an esophagus about three or four inches above the cardiac orifice, and in another case of stenosis of the esophagus, the esophagus was explored very slowly because there was a suspicion of the condition there. The esophageal tube was passed downward slowly, and it went only a short distance before a tumor projecting into the esophagus was discovered, which was pulsating. Prof. Killian retreated at once. The next day the tumor ruptured and the man bled to death.

Bronchoscopy and esophagoscopy are thoroughly practical. Their practical demonstration is a frequent occurrence in Prof. Killian's clinic. It is never done, however, until all other means of exploring by means of the laryngoscopic mirror is exhausted, or until it is found impossible to see into the trachea far enough to diagnose the condition. After that fails the tubes are used, and their use is attended with less discomfort than one would imagine from their general appearances. When the technique of their introduction into the bronchus and esophagus has been more generally acquired, it will be found that the medical profession owes to Prof. Killian and his able assistant, Dr. Von Eichen, one of the most valuable diagnostic helps it possesses.

MEDICAL NEWS.

Edited by Clarence Reginald Hyde, A.M., M.D.

Members of the different County Societies of Long Island are requested to furnish news items and personals for this column not later than the eighteenth of each month. Kindly mail to the news editor, 126 Joralemon Street, Brooklyn Borough.

Dr. James MacFarlane Winfield, of 47 Halsey Street, announces future office hours from 9 to 1, daily, except Sundays, and on Tuesdays and Thursdays from 4 to 7 P. M.

Death of Dr. Glynn.—The death is chronicled of Dr. James W. Glynn, aged 37, December 3, 1906, at his home, Stratford Road, Flatbush. He was graduated in 1894 from the Long Island College Hospital, and was a member of the Kings County Medical Society.

Dr. Louis Curtis Ayer, of Bay Ridge, has opened an office at 113 Montague Street, this borough, and will specialize in diseases of children.

Dr. Polak Resigns Professorship.—Dr. John O. Polak, of 287 Clinton Avenue, has resigned his professorship of Obstetrics in the New York Post-Graduate School, in order to fill the chair of Gynecology in the new Brooklyn Post-Graduate School.

Officers and Meetings of the Long Island Medical Society.—At the annual meeting of the Long Island Medical Society in December, the following officers were elected: President, W. Carl Schoenijahn; Vice-President, Le Grand Kerr; Treasurer, John E. Jennings; Secretary, Walter D. Ludlum; Trustees, Stephen H. Lutz, William A. Tomes and Frederick C. Holden.

The annual dinner of the Society will be held at the Brooklyn University Club, February 15th.

The committee in charge of the monthly programs of the Long Island Medical Society has issued the following calendar of the year:

Meeting of January 8, 1907—General Subject, Sudden Death. J. R. Stivers, Chairman.

Meeting of March 5, 1907—General Subject, Electrotherapy. C. E. Lack, Chairman.

Meeting of April 2, 1907—General Subject, Hemorrhage. C. B. Bacon, Chairman.

Meeting of May 7, 1907—General Subject, Climatology. R. H. Pomeroy, Chairman.

Meeting of June 4, 1907—General Subject, Clinical Reports. M. L. Bodkin, Chairman.

Meeting of October 1, 1907—General Subject, Hydrotherapy. F. C. Holden, Chairman.

Meeting of November 12, 1907—General Subject, Alcoholism and Drug Addiction. W. D. Ludlum, Chairman.

Meeting of December 3, 1907—General Subject, Miscellaneous Papers. B. C. Collins, Chairman.

Williamsburgh Hospital Benefit.—The Williamsburgh Hospital gave its second annual musicale and dance, for the purpose of raising funds to meet the increasing expenses of the institution, at the Pouch Mansion, Thursday evening, January 17th.

Illness of Dr. William Ford.—Dr. William Ford, of 247 Clinton Street, son of Dr. A. W. Ford, has been confined to his house by illness, which at first was thought to be typhoid. He is reported out of danger and convalescing steadily.

New Coney Island Hospital.—The drawings of Architects Helmle and Hubertz for the structures which will form the new Coney Island Hospital, have been accepted by the Commissioner of Public Charities. The Buildings will be located on the Coney Island Boulevard, in the centre of a park. Brick, with stone trimmings, will form the building material, and work is expected to be begun in the early spring. In addition to the main building there will be a nurses' home, and a similar one for the internes, a heating and lighting plant, stable, dormitory for the help, and a morgue. The hospital will be open all the year.

Dinner to William Francis Campbell, M.D.—Friday evening, January 18, 1907, Dr. Campbell was tendered a dinner at the Union League Club in Brooklyn. Dr. James W. Fleming presided, and made the only address of the evening. Those present were: Lewis S. Pilcher, Frank E. West, O. A. Gordon, Walter C. Wood, J. Bion Bogart, A. T. Bristow, Joshua M. Van Cott, H. G. Webster, James P. Warbasse, Albert T. Huntington, Glenworth R. Butler, James W. Fleming, Russell S. Fowler, Fred. D. Bailey, Charles W. Cox, John O. MacEvitt, John O. Lee, John R. Stivers, J. Richard Kevin, William F. Dudley, Dudley D. Roberts, Nathan T. Beers, William Browning, Henry Fairbairn, John Alva McCorkle, William Francis Campbell.

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WHY DELAY OPERATION FOR APPENDICITIS?*

By THOMAS BRAY SPENCE, M.D.,
BROOKLYN, NEW YORK.
Surgeon to the Methodist Episcopal Hospital.

THE treatment of appendicitis must always depend to a very great extent on the attitude of the general practitioner; for to him is it left to say when the surgeon shall be called in, and his advice will go far towards determining the patient's decision in the matter. The surgeon's experience in handling this disease is necessarily larger than that of his medical brother, and should therefore be the basis of judgment to them both. That this is the actual state of affairs is indicated by the interest shown in the utterances of a well-known American surgeon so widely quoted throughout the country during the last two or three years. Reference is made to the teachings of Ochsner, who advises delay in operation for certain cases of appendicitis. There are many surgeons who do not agree with him, and even those who do will admit that an enormous amount of harm has been done by a too general acceptance of, or perhaps I should say by a perversion of, his views on the part of the profession at large. Many cases are brought to the hospital having gangrene, or abscess, or extensive peritonitis who have been watched by their physician and advised to wait until they can undergo the so-called interval operation. Some of them, alas, do not reach the interval, and many of them must suffer the delay of convalescence and encounter the complications brought on by an extensive inflammatory process.

It is fitting, then, that this society should discuss a subject of such importance; and, if there is a unanimity of opinion, should promulgate that opinion widely; or, if there are differences of opinion, should determine, as I think we can, that the differences are only minor ones and are not at all a justification for harmful delay in consultation and treatment.

When we speak of delay in these cases we must not take into account the actual time in hours or days that has elapsed since the beginning of the attack, but must rather consider the progress of the pathological process taking place in the structures of the organ. Twelve hours may be long enough for the most damaging results of a virulent infection, while a milder infection might do less injury in as many days. An early operation is one that has been performed before the disease has progressed to such a stage as to render the outcome doubtful. It may be late if performed so early in point of time as the second day, and all of us have seen cases where operation was clearly indicated within the first twelve hours of the attack. An arbitrary time limit of safety cannot be established.

The experience of surgeons has shown that the operation for removal of the appendix is not in itself a dangerous one, is in fact as free from risk as herniotomy or any abdominal operation. Richardson has reported nearly a thousand consecutive recoveries after simple appendectomy and many others can show similar comforting records. The technic has been developed almost to perfection and the results are as good as we ever can look for. Removal of an inflamed appendix before gangrene, or perforation, or peritonitis has shown itself is a simple appendectomy; the operation is as quickly performed and is the same in every detail; the wound is closed without drainage, and recovery from the operation is quite as certain as though the appendix were normal. Every case of appendicitis must at some time be in the stage permitting the simple removal of the organ, and in view of the havoc this dangerous disease can create at a later stage the early simple appendectomy is not only permissable, but urgently indicated. The excellent, indeed almost perfect, results of a clean and uncomplicated laparotomy are possible in appendicitis treated by operation, but the operation must be performed before the complications induced by infection have intervened to prevent a perfect technic.

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*Read before the Brooklyn Surgical Society, December 6, 1906.

The fatalities in appendicitis are always due to its complications, and it needs but a hasty consideration of the common complications to convince one that they are nearly always caused by an extension of the inflammatory process beyond the limit of the structures of the appendix. General peritonitis is by far the most common cause of death. Septicemia, pyemia, hepatic and perihepatic abscess, pleural and pulmonary affections and cardiac disease are all seen at times, and one case of meningitis has come to my notice. Ileus is also to be reckoned with, and this among all the complications is least likely to be due to a wide-spread infection. Such grave secondary infections as these do not follow a narrowly limited process, provided the source of the infection is promptly removed, and this is as true of appendicitis as of any other acute inflammatory condition. How often are surgeons at the operating table heard to express regret at not having received the patient for operation a few hours or days earlier. On the other hand, regret for too early an operation is rare indeed, and the reason for this is not far to seek, for the latter cases all recover, while some of the former must perish.

The late case must often bear the additional burden or shock from a prolonged operation and anaesthesia. Ten to fifteen minutes will usually suffice for a simple appendectomy, while an hour or more will sometimes be consumed in operating on the bad cases. This discomfort of drains and the interference with the normal action of the bowels, as well as the pain caused by frequent changing of the dressings, are all to be considered, and to the patient they are very grievous annoyances. Ventral hernia, which should never follow a clean operation, will not infrequently be found after drains have been used, and painful, or perhaps obstructing adhesions and bands are too often the sequels to a suppurative appendicitis.

These distressing and dangerous complications and sequels are quite generally known among the laity, and the knowledge of them cannot help but influence patients and their friends against operation. This is a prejudice that the early operation should not be made to bear. The unnecessary delay due to indecision of patients is often the direct cause of the suffering they seek to avoid.

At the present time the mortality rate following operation for appendicitis is about 3 per cent., provided the operations are done by those skilled in this kind of work and under conditions favorable to the care of the patient. This includes all cases, the good and the bad, as they are turned over to the surgeon by the family doctor. I have lost three cases from the last one hundred consecutive operations for this disease, and I unhesitatingly blame all of the deaths to delay. One case was operated at the end of two and a half weeks, when a large abscess was found about the cecum and extending down into the pelvis. The wound showed no tendency to heal, a fecal communication appeared, and death from pyemia followed in three and a half weeks. Autopsy showed multiple abscesses in the mesentery of the small intestine. The second fatal case came to the operating table after three days with a diffuse peritonitis. He survived operation but three days. The third case came to me after one week with a large abcess about the cecum. He was operated and seemed on the road to recovery, but on the fourth day his temperature went up and a marked jaundice appeared. The case had a fatal termination on the fifth day, death being due to abscess of the liver or to acute hepatitis. Autopsy was not obtained. The infection in such a case travels up through the portal vein and is secondary to a pylephlebitis. These three cases did not seem worse than some others of the one hundred, but a guarded prognosis in all of them was certainly justified. Who will say that they did not pass by a period of safety for operation, and that their lives were not therefore needlessly sacrificed? I believe that the histories of these cases showed that operation was clearly indicated during that period of safety, as a diagnosis of acute appendicitis, and that, too, of a severe type, was easily made in them all.

Some may think I could well have delayed operation on the second case who suffered from diffuse peritonitis. My answer to that is that I am now protesting against the delay which makes general peritonitis possible. The surgeon should not be put to the necessity of treating so grave a lesion, if that condition could have been avoided by a more prompt interference. Do not infer that I agree with such a criticism on the treatment of the cases complicated by peritonitis. On the contrary, I am among those who hold that immediate operation for the removal of the cause of the infection, done as speedily as possible, offers to these sufferers their greatest hope of relief, and at some other time I would gladly present my results and provoke a discussion of this particular phase of the subject. However, no one can doubt that peritonitis will always be a deadly disease, no matter what methods are resorted to in its treatment, and the prevention of its development, whenever possible, is the imperative duty of physician and surgeon. Emphasis of this one point is the chief object of this paper.

But, you say, delay in mild cases under the watchful eye of the attending physician cannot subject the patient to the danger of these complicating infections. Can it not? I have operated on many cases that seemed to be progressing toward recovery and found gangrene of the appendix, small collections of pus and even perforation. Temperature is not always a guide to the condition, the blood count is far from infallible, those very reliable signs, tenderness and rigidity, will sometimes lead us astray, and all the signs at our command will not in every case give us definite knowledge of the pathological condition of a diseased appendix. When men of so much ability and of so great experience as Richardson report that they have carefully watched cases for many hours under the impression that they were improving, that the inflammatory process was receding, and then at operation have found the most destructive lesions of the appendix, it can be safely asserted that we have not yet acquired a diagnostic acumen sufficiently penetrating for us to promise that any particular case of acute appendicitis is safe without surgical intervention. In other words, a prognosis before operation can never be positively made. It is true that our suppositions may often be correct, but there will be a certain number of cases that will present pathological conditions entirely out of proportion to the severity of the symptoms, and these cases will deceive us and disappoint us if we persist in waiting to perform on them the interval operation. At the best the patient must spend an additional length of time in bed, and in this instance procrastination is much worse than a thief of time; it is a highway robber threatening our patients' lives.

Of course, I would not have you

think that I can see no possible exceptions to so rigid a rule. A patient's general condition might absolutely contraindicate operation. A pneumonia or other severe pulmonary lesion, an endocarditis, a nephritis and many other co-existing diseases might outrank in importance the disease of the appendix, and the patient's unfavorable surroundings might also stay the surgeon's hand, but with these few exceptions in mind I am unalterably of the opinion that the cure of acute appendicitis is prompt operation.

THE CHOICE OF TIME FOR OPERATING IN CASES OF APPENDICITIS.

BY LEWIS STEPHEN PILCHER, M.D.

BROOKLYN, NEW YORK.

IN the present state of our knowledge of the pathology of appendicitis and of experience in the technique of its operative relief, it is safe to enunciate the general principle that, in the absence of controling contra-indications, the development of an appendicitis is an indication for removal of the appendix, that such removal is the first indication for treatment, and that all other therapeutic measures, whether hygienic or medicinal, are secondary in importance and to be adopted merely as temporary or preliminary procedures. The discussion of all the various phases of the appendicitis question, which have occupied so much of the attention of the profession for the past twenty years, is not germane to the present question, and I will not take time or space in the present communication to enter upon them in any detail. My own opportunities of professional observation date back to a period before the rise of positive knowledge in this field, and the gradual increase and perfection of knowledge therein, as it has developed, has been followed with intense interest by me. This has been due not only to the intrinsic importance of the subject itself, but to my personal relations to many of those who have been leaders in the work, while, at the same time it has been my fortunate privilege to have had some agency in giving early and wide publicity to their observations.

During the period comprising 1864 and the first half of 1865, as the steward of a General Hospital in the United States Army, to which were brought all the sick from the forces in southwestern Missouri and northwestern Arkansas, I had personal knowledge of all serious cases of illness in a considerable body of troops. During that entire period there was no case of appendicitis which came under my observation. Later, for five years, in the period from 1867 to 1872, ashore and afloat as a medical officer in the United States Navy, I was necessarily familiar with the ailments of a large number of sailors and marines. Among them, during this period, no cases of typhlitis, perityphlitis or peritonitis came under my observation. These facts may be interesting from the standpoint of etiology of appendicitis, as suggestive that it is due to causes connected with a mode of life less strenuous and exposed than that with which the experiences referred to in the earlier years of my professional life brought me in contact.

From the beginning of my work as a practitioner in this city of Brooklyn, beginning in 1872, occasional cases of what we called perityphlitis soon began to come under my observation, both in my own practice and in that of my colleagues with whom I came in consultation. The great majority of these cases, after a more or less stormy course, ended in recovery. I can recall some fatalities, but I have no records upon which to base any accurate statements as to their relative proportions.

Until 1889, no suggestion of surgical interference, beyond that of opening an abscess when it evidently was approaching the surface of the abdominal wall, was entertained. In 1886, Fitz had published his paper upon the diagnosis and treatment of the inflammation of the vermiform appendix, from which dates the beginnings of the present ideas in dealing with inflammatory affections of that organ.

In November, 1889, McBurney in New York, and Senn in Chicago, published papers in which early resort to ablation of a diseased appendix was recommended, cases of its successful practice were detailed, and indications for its practice and operative technique were fully outlined. Stimulated by these papers, in an editorial in the "Annals of Surgery" for December, 1889, I used the following language:

"Notwithstanding these cases of Senn and McBurney, the indisputable soundness of their pathology, and the brilliant successes of their own efforts, it ought not to be forgotten—nor will it be when the final judgment of the profession is made up—that by far the greater portion of cases of acute appendicitis, those which have been hitherto classed as typhlitis or perityphlitis, recover spontaneously and permanently without suppuration, or at least without intra-peritoneal suppuration. Those classed by Senn as chronic appendicitis form a group by themselves; spontaneous and permanent recovery, however, from this condition also is not infrequent. A very grave responsibility, therefore, must attach to the surgeon in any given case in deciding upon laparotomy and excision of the appendix. It is evident that at present, at least, it could only be proper for one who was perfect master of aseptic abdominal technique to offer such a procedure as less dangerous than the policy of delay and palliation. It is doubtless true that if, in all cases in which there were present symptoms pointing to trouble with the appendix, the abdomen should be opened immediately and the appendix excised, the occurrence of imminent perforation would be anticipated in some cases, the production of general peritonitis would be prevented, and lives would be saved. On the other hand, many would be subjected to the hazards of laparotomy and excision in which there was no danger of perforation, and which would have recovered spontaneously if let alone.

The general principles that govern surgeons with reference to all operative work must, however, be applied here, and in any given case the probabilities of every kind must be given due weight in coming to a conclusion. Surgeons may still hesitate and delay operative attack in cases of appendicitis until well-defined evidences of suppuration are obtainable, and their course can not be said to be otherwise than prudent. Surgeons may boldy expose the appendix and remove it upon the first symptoms of inflammation declaring themselves, and as long as their results are as favorable as those of Senn and McBurney, their course must be considered justifiable."

I have quoted these remarks, written eighteen years ago, to show the spirit with which this problem was approached at that time, and which in its essentials has governed me in my attitude to this question throughout. As the years have gone by, increasing experience has, however, caused me, in common, as I believe, with all men active in surgical work—to feel that the hazards of laparotomy, *per se*, had been reduced to such a minimum that they were not to be seriously taken into consideration by an educated and skilled surgeon in determining the question of the treatment to be adopted in cases of appendicitis; while the greatest importance attached to the principle enunciated by Dr. Spence in his article, that the dangers attending operations for appendicitis attached not to the opening of the abdomen, nor to the removal of the appendix, but to the presence of complications which may have already arisen as the result of failure to interfere at a period before their development. The logical conclusion was the practice of resorting to an exposure of the appendix at as early a moment as possible after evidences of its involvement have appeared, and thus to anticipate the development of any serious complication.

If it were possible, in any given case, through any symptoms that could be elicited, to positively determine the real extent and future course of the appendical disturbance, then might one, with great reason, adopt the policy of expectation, awaiting the development of conditions demonstrating clearly the necessity of laparotomy and excision, and thus escape the possibility of operation in cases which would have recovered spontaneously if let alone. It is, however, unfortunately the case, as is again and again exemplified in the experience of every surgeon, that often the earlier symptoms give no clue to the real extent of the damage which the appendix has sustained, or of the imminence of diffused peritoneal infection. It does not need many experiences of this kind to awaken in a thoughtful surgeon the most grave apprehensions with regard to the possible future course of any case in which he is satisfied that the appendix is the seat of an acute infective process.

The conditions of the problem may possibly be stated thus: On the one side there is an acute infection of the appendix, attended with an undeterminable and uncertain hazard of necrosis, spreading infection, local or diffuse suppuration, peritonitis and intestinal paresis. At first in every case there is the possibility that these dangers may be escaped and spontaneous subsidence of the acute symptoms may take place, but with the probability that at a variable later period a recurrence of the original infective accidents will occur, bringing in their train again all the possibilities of danger which attended the primary attack.

On the other side, to meet these conditions, there is presented the surgical procedure of the removal of the appendix, and thereby the radical extermination of the cause of dangerous disturbance both present and future. If the surgeon is fortunate enough to find himself in the presence of a case during the first few hours after its inception, while the symptoms are yet new but still marked, it would seem that the course to be pursued in which lies the greatest certainty of safety to the patient, would be the immediate removal of the infected appendix, thereby forestalling all further complications and bringing a positiveness of recovery to the case securable by no other means.

If the surgeon is called into a case at a later period, the patient having been kept under medical observation during the earlier period of its development, and surgical advice having been sought only upon the supervention of symptoms indicating the development of serious complications, again the presence of these complications emphasizes still more the importance of immediately exposing the infected region, removing the source of infection and providing for the escape of its results, although the presence of such complications must greatly increase the gravity of the case and lessen the certainty of favorable outcome to the surgical intervention.

The surgeon may again first be consulted in cases in which the spontaneous subsidence of the symptoms is taking place. In such cases, while there is much reason for the expectation that progressive improvement will follow, nevertheless for some time there remains, even in cases apparently pursuing the most favorable course, the possibility that the sudden aggravation or recrudescence of infective phenomena may occur, and the most serious complications be awakened.

In this class of cases immediate surgical intervention may not be considered important, but operation may wait upon convenience, or may possibly be postponed until a renewal of symptoms may demonstrate the incompleteness of the recovery supposed to have taken place.

There remains a more lamentable, and in our present state of knowledge almost inexcusable class of cases, in which expectant and ordinary medical measures have been indulged until the symptoms of extending infection have become so overwhelming that a fatal termination is imminent and the final catastrophe is evident even to the casual and inexperienced observer. In such cases, the surgeon might with some reason, if ever, refuse to interfere, since in a large proportion of them the sepsis has become so extensive and overwhelming that despite his most skilful efforts, death can not then be prevented. Nevertheless, unless the patient be plainly in articulo mortis, the hidden and the unknown quality of individual resistance and recuperation may yet be sufficient to secure the ultimate recovery of the patient, provided the help is given him which would come from the evacuation of septic material and the removal of an active fountain of sepsis.

I have thus briefly endeavored to state the conclusions to which I have been led by the experience that has been gained from the work of the years which have elapsed since the penning of the editorial of 1889. It will be seen that the field of expectation and of delay has been very greatly narrowed, and the indication for prompt surgical intervention has been broadened and emphasized. It seems to me that a very just and defensible position for the surgeon of the present day to take with reference to the "choice of time for operation in cases of appendicitis" might be fairly stated in these words, almost epigrammatic in their character, viz., *in appendicitis the time for operation follows closely upon the heels of diagnosis.* But it must not be gainsaid that often there will arise, or there are evident, conditions which must modify the application of this principle in practice; such matters of modification must be left to the individual judgment of the surgeon. Nevertheless, as time has advanced and experience has accumulated, the frequency with which the surgeon finds it necessary or best to materially depart from this principle has become less and less.

CASES OF APPENDICITIS WHICH DO NOT DEMAND OPERATION.

By JAMES P. WARBASSE, M.D.,

BROOKLYN, NEW YORK.

Attending Surgeon to the German Hospital and to the Seney Hospital.

IT is a fact that, most of the literature of appendicitis is from the pens of the surgeons; and most of the cases of appendicitis are treated in the hands of the physicians. The vast majority of cases of appendicitis recover, and never figure in the statistics of this much discussed subject. Uufortunately for the education of the surgeon most of the appendicitis which he sees demands operation, and many of the patients should have been operated upon before he saw them, yet all of these represent a minority of the cases. Basing the contention upon their own experiences, many competent surgeons declare that all cases should be operated upon. This would be good doctrine were it modified with the proviso, that, it should mean, all cases which are sent to the competent surgeon should be operated upon by them. But to promulgate the teaching that every case of appendicitis should be operated upon by somebody is dangerous surgery and poor medicine.

In these discussions the surgeon is prone to look at the subject from his own personal viewpoint, and not from that of the average status of surgery. Moreover, it has seemed to me that we all give too little heed to the dangers and disadvantages *per se* of abdominal operations; and while we are familiar with the surgical operative treatment of appendicitis, are we as well posted as we should be upon the internal treatment of this disease and its possibilities, and is it not true that we develop the habit of operating upon cases because of the assumption that they are sent to us for the purpose of operation? I have long since ceased to regard appendicitis as a distinctly surgical disease, and am well convinced that every case from the beginning should be under both surgical and medical observation. There should be both confidence in the internal treatment, and the knowledge that surgery can suplement its difficiencies.

No rule can be laid down as a guide by which to determine just when a case shall be operated upon, but there are certain general principles which may be formulated to aid in determining which cases shall have operation and which shall not; and it is desirable to discover the middle ground upon which opinions differ in this matter. My own experience has involved many cases which I have dismissed cured without operation, and many cases which have perished for want of earlier operation. To have operated upon all of these patients at the beginning of their attack would have given a much lower mortality, but still better than this, in my judgment, would have been to have operated only upon those of the second class at the opportune time when operation was indicated. I am satisfied with the cases which recovered without operation. They sometimes return to me, or someone else operates upon them in a subsequent attack, but this does not militate against the first judgment. The surgeon who operates upon all patients would have no better fortune with the second class of patients. As to the first class, I believe that so large a proportion have no serious recurrence, that, excepting in the special instances which I shall mention, operation is not called for.

Operation, I should say, is indiced in the following cases:

1. *Appendicular abscess; that* is, appendicitis causing a circumscribed collection of pus, constituting a tumor.

2. *Appendicitis giving rise to an inflammatory mass,* which can be determined as a distinct tumor, and accompanied by the evidences of suppuration and cellulitis. That is the condition in which the omentum usually constitutes the main bulk of the tumor, being adherent or wrapped about the appendix, thickened and infiltrated with inflammatory products, and adherent on the other side to intestine or abdominal wall.

3. *Appendicitis with great enlargement of the appendix by pus distension* (empyema of the appendix). These cases are usually of slow development.

4. *Fulminating appendicitis:* the cases which are severe from the onset, showing rapid pulse; high temperature; and a high and increasing multinuclear leucocyte count, indicative of severe infection or meagre resistance.

5. *Gangrenous appendicitis, and perforating appendicitis.* These two are often sequelæ of the above type, and demand immediate operation.

6. *Appendicitis, while giving rise to none of the above conditions, does not begin to subside,* if severe after the first or second day; or, if mild, after the fourth or fifth day, as shown by persistent elevation of temperature, increase of pulse rate, pain, tenderness, and increased polynuclear index.

7. *Appendicitis* falling in any of the above classes, which has persisted and

extended its infection to neighboring structures.

8. *Diffuse Peritonitis*—either from perforation without adhesions, or with multiple foci of suppuration. Operation should be done in these cases unless the state of the patient is so bad as to contraindicate operation.

9. *Symptoms of intestinal obstructure,* either after operation or in the course of the disease, demand operation.

10. *Sudden or gradual exacerbations of symptoms,* occurring during the progress or subsidence of attack, however mild, call for operation.

11. *Appendicitis with evidences of metastatic infection* in other parts or organs.

12. Operation is indicated *after a second attack,* if more severe than the first; and always after repeatedly recurring attacks, unless there is a mitigation of severity in each succeeding one.

13. *After the subsidence of acute appendicitis, if there persist the symptoms of chronic disturbance,* referable to the appendix, such as pain, tenderness, digestive and intestinal unbalance(due to continuous infection of a low grade, chronic congestion, distension, or adhesions), the appendix should be removed.

14. If the patient is to live in some place remote from competent surgical assistance, operation is indicated after a second attack of appendicitis. Operation may properly be done in such a case after or during a first attack.

15. When the physician and surgeon are in doubt as to the advisability of operation, operation should be done.

Notwithstanding, this is a large catalog of indications for operation; as a matter of fact it represents but a small proportion of the cases of appendicitis. Most of the cases lie outside of this category.

The cases in which operation is not indicated are the primary attacks of appendicitis, not falling under any of the above heads, of slight or moderate severity, in which the symptoms do not grow worse after the first 36 or 48 hours, and which show an amelioration by the second or third day. These are the typical cases, the commonest type of appendicitis, beginning with difuse colicy pains about the mid-abdomen, nausea, often vomiting, pain and tenderness after a few hours localizing at the appendix, rigidity of the overlying muscles, rise of temperature, increase of pulse rate, leucocytosis 12,000 to 16,000, polyneuclear leucocytes 75 per cent. to 85 per cent (with a low percentage comparative to the total leucocytosis according to Gibson's standard chart). Many variations of these characteristics occur; and the severity of all the symptoms may be so mild as to render diagnosis doubtful or so severe as to place the case at once in the operative class. These cases pathologically belong to classes of (1) acute appendicular obstruction, with swelling of the mucous membrane, or foreign body, or stricture occlusion, having colic as a prominent symptom; (2) acute catarrhal appendicitis; (3) acute catarrhal and interstitial appendicitis; (4) acute interstitial appendicitis with congestion, but not infection, of the peritoneal coat; (5) exacberations of chronic appendicitis with a low grade of infection.

Appendicitis of the acute catarrhal and interstitial type without thrombosis of the nutrient vessels are the commonest types of the disease. Under judicious management according to the most recently accepted plans, most of them go on to recovery. It is estimated that 75 per cent. of all cases of appendicitis recover without operation I believe that the percentage is higher than this. Everyone of these mild cases should be watched carefully; if this cannot be done, immediate operation in the hands of a competent surgeon is indicated. Opportune operation is preferable to taking chances with an emergency which may not be properly met.

The remarkable statistics, which have developed out of Ochsner's method of treatment, now make indefensible the belief that every case of appendicitis should be operated upon, if such a belief ever were defensible.

OF WHAT SERVICE IS THE CLINICAL PATHOLOGIST TO THE CLINICIAN?

By FREDERIC E. SONDERN, M.D.,
Professor of Clinical Pathology, N. Y. Post-Graduate Medical School.
NEW YORK.

THE advances made in organic chemistry, microscopy and bacteriology are such, that much of value in clinical diagnosis and prognosis can be learned and the evolution of these practical procedures has led to the development of the clinical pathologist.

This development has been a slow one for a number of reasons and the application of the results has been hampered for other reasons. Up to a comparatively short time ago, medical education or the college training preceeding it, did not as a rule develop a sufficient knowledge of laboratory technique, especially in organic chemistry, to make the medical man a competent laboratory worker, particularly in the intricate chemical problems now so essential in refined diagnostic methods. The result of this fault was, that the actual work of investigation was undertaken by chemists with no knowledge of the clinical demands and consequently little understanding of the particular direction in which the investigation should be carried. Their results were then applied by clinicians, with the best intentions to learn what is useful, but hampered by the lack of knowledge mentioned. While modern time has brought much improvement, the medical student is even at present not sufficiently equipped in technique though generally thoroughly drilled in the theory of the work. Even as a hospital interne, where he is expected to make practical use of what he has learned in this regard, its significance seems to be overshadowed by the many interesting clinical observations at hand, with the result that the laboratory work is often done in a perfunctory and superficial manner as every attending physician has reason to know.

Every broad-minded clinician shows much interest in the theories and results of experiments which come from the scientists of the day, and this should be so, as in these lie our hopes for improvement and progress; but for practical everyday purposes in diagnosis and prognosis, we have need only for those procedures which can be executed with reasonable promptness and which are of practical moment in clinical work; and thus for practical purposes a further sub-division seems to be essential. Research work is not remunerative and must therefore be undertaken by endowed institutions. These usually have a brilliant scientist at their head, but much of his energy is expended in executive duties and in detail of management, with little enough time remaining in which to plan the investigations to be made, or receive the reports of and tabulate the work that has been done. The burden of the actual undertaking falls on quite a number of workers, each engaged for a longer or shorter daily service, usually none with sufficient salary for complete personal maintenance, being thus dependent on additional occupation. The result is they are not heart and soul in their work, and, in my opinion, the employment of a smaller number of workers whose exclusive service is amply remunerated, would lead to greater and more efficient result. The practical work of clinical utility must be done as far as possible by the clinician himself, and when he lacks the time, by a junior associate or by the clinical pathologist. In order that the best results shall be obtained it is essential that the work be done by one familiar with clinical needs, as it often happens that certain features in a specimen suggest certain lines of investigation which would not occur to one without this knowledge. There

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*Read before the Brooklyn Pathological Society, December 13, 1906.

are moreover quite a number of laboratory procedures of distinct clinical value, which demand expert technique, an array of apparatus and standardized reagents which any one man's practice would scarcely justify in maintaining, and once begun brook no interference from a hurry call, that come distinctly within the sphere of the clinical pathologist.

Routine examinations of urine, blood, gastric contents, feces and some other secretions and excretions of the body are well within the scope of the clinician, provided he has the requisite time, the technical skill and maintains the necessary apparatus and reagents in efficient working order. The more complex chemical problems of the urine and other excretions, such as the nitrogen partition, the sulphate partition, many of the more difficult quantitative determinations, etc., can scarcely be undertaken by him with the hope of trustworthy results, and are better referred to the clinical pathologist. The main objection to the analytical work done by the clinician as a class, is not lack of accuracy, but rather a want of methodical procedure leading to complete investigation. The clinician is very apt to conclude his diagnosis and then make his urine analysis or blood examination with the purpose in mind, chiefly, to corroborate his clinical findings rather than with a view of excluding other possible conditions, some of which may not occur to him at the time. A few examples may emphasize this point. A pallid young woman may show the clinical evidence of a chlorosis and her medical adviser, mindful of laboratory corroborating diagnostic aids, but lacking methodical procedure, determines the amount of hemoglobin to learn the degree of anaemia, and test the urine for reaction and gravity as a matter of routine, and for albumin to exclude a possible renal lesion. Had both the blood and the urine examinations been complete he might have found a beginning leukaemia, a slight diabetes, or a secondary anaemia, instead of a chlorosis, with relative eosinophilia to justify a suspicion of possible intestinal parasites. One may argue that these other conditions give you quite a different clinical picture, and that in diabetes the specific gravity of the urine would have attracted attention to the probable presence of glucose. True, ordinarily the clinical picture is indicative of the disease beyond question, but unfortunately there are exceptions. Again, ordinarily the gravity of diabetic urine is high, but from time to time you find glucose with a gravity of 1008, and these are just the cases with the atypical clinical picture, in which you may ascribe the frequency of micturition to a neurotic polyura often seen in chlorotic girls.

Allow me to picture another example. A patient in previous good health is confined to bed with an acute ferbile disease, the exact nature of which has not yet become apparent. His physician, we will assume, looks upon malaria or typhoid as the most probable explanation, and may give him a few good doses of quinine before deciding on a Widal test and a plasmodia hunt. Widal reactions are tardy in appearing, and most varieties of plasmodia soon leave the peripheral circulation after the administration of quinine. While a complete blood examination in this case does not give you the diagnosis, it does narrow down the possibilities, and usually leads to an earlier recognition of the disorder. The presence of a leucocytosis and relative polynuclear increase, at once suggests a most probable inflammatory lesion, though not indicating its site, and at the same time lends information as to its virulence and the degree of body resistance offered. The absence of these signs allows the exclusion of the diseases which occasion them and thus suggest the possibility of the different ferbile disorders which occur without them. While you seldom obtain a Widal reaction in the first few days of a typhoid, the very frequent leucopenia and relative lymphocytosis are suggestive, and while plasmodia of malaria may, for one or other reason, not be found in that disease the decided increase in the relative number of large lymphocytes is usually a corroborating feature. Examples of this kind are easily multiplied and the lesson they teach is, that methodical and complete investigation of your specimens is necessary, if you desire all the information they are capable of giving, and do not wish to occasionally meet with disagreeable surprises which such thoroughness might have avoided. In order to obtain the maximum information from laboratory aids in diagnosis with a minimum degree of error, a number of essentials must be carried in mind. Those of us who have argued in favor of one or other laboratory aid have always met with the response that such aid does not take the place of bedside observation. Allow me to say, with all the emphasis of which I am capable, that no laboratory procedure, no matter how important, ever takes the place of clinical observation, and it is the man who is the most acute bedside observer that gets the most help from laboratory aids, for he is generally also well informed as to the value and significance of the changes from the normal noted in the laboratory investigation. As usual, one encounters the two extremes, the young man over enthusiastic about laboratory help and apt to misinterpret it on account of neglect of bedside observation, and the old one not sufficiently versed in the help to be had from laboratory aids or their significance and over confident in his clinical intuition, both err and err badly sometimes, and justify the motto, "He who makes his diagnosis in the laboratory is as shortsighted and liable to grave error as the man who ignores the microscope and the test tube." The diagnostician who strives to excel is the one who developes his bedside skill to the greatest possible degree, and who learns to apply the results of complete laboratory investigations as an aid in his work.

It is out of the question to enumerate even a small share of the laboratory aids in diagnosis, in a communication of this kind, but I crave your indulgence while reciting personal experiences in a number of conditions in which laboratory help has been of signal advantage to the clinician.

Whether or not you believe in the operative treatment of renal tuberculosis, an early diagnosis is certainly desirable. Any one who has occasion to make many urine examinations and looks for tubercle bacilli in a routine way, is impressed with the frequency with which we meet cases of tuberculosis of the urinary tract. Finding tubercle bacilli in the urine is the result of patient search, rather than of skill, and a properly stained specimen, thoroughly decolorized, offers better chances of success in the search than the counterstained specimen, the many details of which weary the eye while searching for what the first named type of specimen shows with equal clearness. The differential diagnosis between tubercle and smegma bacilli offers less difficulty than the books would lead us to believe, for the distinct morphology and differential methods are easily applied. As symptomless hematuria, often very slight, and nocturnal frequency of micturition are the most common early clinical symptoms of renal tuberculosis, a search for bacilli should invariably be made, and the same applies to every case of pyuria, the cause of which is not known.

Modern research has demonstrated that faulty intestinal metabolism or intestinal toxaemia, may not only be the cause of a distinct complex of symptoms, but often results directly in typical eye lesions, convulsive seizures resembling or allied to epilepsy, decided secondary anaemia, the group of symptoms classed as neurasthenia, and others. It is not within my province to discuss possible etiological factors or to argue theories on hepato-toxaemia or reasons for the presence of excessive amounts of indoxyl or skatoxyl sulphate in the urine, but I do wish to bring to your attention the necessity of looking for the evidence found in the urine in this class of disorder, as its presence is otherwise frequently overlooked by the clinician. Every routine urine analysis should include a test for excess of indican as this is the most simple way in which to learn of the presence of the disorder, though numerous cases will be overlooked as indicanuria, while common is not a constant symptom. A sulphate partition to learn of the ratio between mineral and ethereal sulphates is much more reliable, but also more laborious. Did time permit, and were it not intruding on your indulgence, I could recite the details of a large number of cases in which these determinations were the direct result of explaining obscure conditions and thus leading to rational therapy.

Some cases of cyclic vomiting in the young and periodic headaches in the adult are found to be accompanied by a disturbed nitrogen partition in the urine and the occurrence of an acidosis at the time of the attack. The disturbance in the nitrogen partition seems to be chiefly in the relative amount of uric acid excreted; at the time of the attack there is an excessive amount as compared to urea, for example, with the presence of a large amount of acetone and diacetic acid and occasionally beta-oxybutyric acid. After the symptoms have subsided the acidosis has disappeared and the urea and uric acid ratio is normal. During the interval there is gradual retention of uric acid, with decreasing relative excretion, until another attack occurs, when this cycle repeats itself. What etiological connection all this has with the clinical symptoms I do not know, but it would seem to be a therapeutic indicator of value as I have been informed by clinicians.

Modern chemical research, while it has thrown but little practical light on the etiology of diabetes mellitus, has taught much in the understanding of the disease and particularly in the rational management of the cases in the care of the physician. It seems established that the faulty metabolism succeeds in splitting carbohydrate radicals from the proteid intake and the degree of this faulty chemistry is a better guide to the severity of the case than the amount of sugar excreted or the degree of acidosis. It is also well known that the evidence of acidosis is a much more important point in the prognosis of contemplated surgical procedure in diabetis than the amount of sugar being excreted at the time.

As the dietetic and therapeutic indications vary, according to the severity of the case of diabetes, a rational scheme is necessary, by means of which the grade of severity can be determined in each case. Such classification has become possible as the result of the recent work on the origin of the sugar, and now for practical purposes the clinical types of this disease can be divided into three classes as follows:

1. *The mild form.* It these cases it is possible to eliminate the sugar from the urine by restricting the carbohydrate intake. If the patient will tolerate 100 grams of carbohydrate food per day without excreting sugar in the urine, the case belongs in this class.

2. *The intermediate form.* In the cases belonging to this group, the glycosuria cannot be suppressed even by the absolute restriction of the carbohydrate intake, but an additional moderate restriction of the proteid food causes a reduction in the amount of sugar excreted. In them it is possible to keep the nitrogen output below 18 grams, with sufficient caloric intake.

3. *The severe form.* In these cases the absolute restriction of carbohydrate food has but little influence on the quantity of sugar excreted, and the diminution in proteid intake to proper caloric values also makes little or no difference in the degree of glycosuria. When we recall the necessity of at least moderate carbohydrate feeding, in the severe cases, in order to diminish or prevent an acidosis, and the fact that a strict non-carbohydrate diet is of such great benefit in the mild cases, it is easily seen how essential it is to classify each case before a rational treatment can be instituted.

Though much has been written in favor of this manner of classification in diagnosis, I find that it is not in universal use. While the percentage of sugar, or even the daily amount of glucose excreted, the degree of polyuria, and the presence or the degre of acidosis are all important factors, they do not replace the suggested procedure. It is essential to place the patient on an absolutely carbohydrate free diet for some days in order to see if this eliminates the sugar from the urine. If it does so, the case belongs to the mild class. If the glycosuria has been materially diminished and a restriction in the proteid food, not below caloric requirements, causes its disappearance, the case belongs to the intermediate class. If, however, the carbohydrate and proteid restriction results in little or no diminution in the amount of glucose excreted, we know that the case is a severe one, and there is no destruction of carbohydrates in the system and considerable splitting of proteid into carbohydrate radicals. The modern clinicians have formulated dietary schemes most applicable to each group aside from the special indications of an acid intoxication, but a consideration of these is not within my province.

Recent careful analytical and experimental work has upset, to some extent, our former views concerning the cause of acidosis in diabetes. The former belief, that the bodies of the acetone group are derived from endogenous and not exogenous proteid when this is split up in order to furnish sugar in the absence of carbohydrate intake or where its reduction no longer occurs, is being assailed, particularly as diabetics often excrete much more acetone than can possibly be accounted for in this way. It is now generally held that oxybutyric acid is the fundamental substance and that diacetic acid and acetone are the products of further oxidation. These substances, it is believed, are derived from the fats, both body fat and food fat participating in the formation. These theories are still the subject of considerable controversy, and after all give us but little, if any, information of practical value to the clinician. If we are to restrict the diet in carbohydrates and proteid on account of the glycosuria, and in fat on account of possible acidosis, what remains for the diabetic to eat? For the present it is the occurrence and not the origin of the acidosis that is of importance to the clinician. If oxybutyric acid is the fundamental substance, it is completely changed in the mild cases of acidosis, for in these small amounts of acetone occur in the urine without the presence of diacetic or oxybutyric acid. Where is occurs in larger amount, most of it is oxidized to acetone and some to diacetic acid and it is only when the acidosis is severe that some of the oxybutyric acid is excreted unchanged. While it is true that the output of oxybutyric acid and its products of oxidation, may be no guide to the amount in the circulating blood, and while it is also true that different individuals vary in their tolerance of poisons of any kind, if the acid intoxication is the sole cause of diabetic coma, it seems strange that the amounts of acid excreted by these comatose patients vary so greatly. We also know that the excretion of acid in the urine may cease, while immense amounts are retained in the blood, as shown by the abnormally high ammonia output in the urine, still how can we explain that an acidosis of cyclic vomiting or that accompanying a toxemia of pregnancy may show much higher quantities of beta-oxybutyric acid and ammonia in the urine without the slightest indication of coma. If the suspicion is justified that the acidosis occurs in conjunction with a toxic infection in toxaemia of pregnancy and in the cyclic vomiting of children, why are we not justified in assuming that a toxin is concerned in diabetic coma and that the acidosis is simply an accompanying feature, as in the two other conditions mentioned? The total difference in the clinical symptoms would tend to corroborate rather than overthrow this idea.

I also beg to direct attention to the fact, established by Minkowski, that the ratio of dexterose to nitrogen in the urine is an important prognostic sign. Mandel and Graham Lusk (*Proceedings of Society of Experimental Biology and Medicine*) recite a case of diabetes in which the clinical symptoms were not severe, though death followed shortly. The dextrose-nitrogen ratio in the urine was, however, 3.65:1, which represents absolute lack of carbohydrate metabolism and a maximum conversion of proteid into sugar and is a very bad prognostic sign.

The classic arguments, in which the toxaemia of pregnancy is held accountable for hyperemesis gravidarum, hepatic changes classed as acute yellow atrophy seen in pregnancy, and most cases of eclampsia, while assailed, have not been overthrown. It is unfortunate that instituted research has not as yet revealed the nature or origin of the toxic poison, and until we know exactly what to look for, too much reliance must not be placed on any one chemical procedure as a diagnostic aid. Particular stress has been laid on the changes found in the nitrogenous metabolism, and, while this is doubtless true, it must not be looked upon as a causative factor, but rather as the direct result of disturbed liver function. The same applies to the statement that the excess of one or other of the nitrogenous groups in the urine is concerned in the etiology of this disorder. In assuming that eclampsia is also a result of toxaemia, the two types of this condition must be kept in mind. The one, probably toxic, presents varied and indifferent findings in the urine, referable to the kidney, while the other, with distinct evidences and history of an acute exacerbation of a chronic nephritis, can scarcely be ascribed to the toxaemia of pregnancy. The frequent previous history of faulty intestinal metabolism, noted in cases of toxaemia of pregnancy, suggests it as one of the predisposing causes, which view is strengthened by the belief that intestinal toxaemia lowers body resistance toward other infections. The abnormal conditions noted in the urine, in cases of toxaemia of pregnancy, act as corroborative evidence in the diagnosis of the condition and may lend aid in estimating its severity, but, as in so many other laboratory procedures, must not be relied upon for a diagnosis nor looked to exclusively, as an indication for operative interference. In my opinion, the chief abnormal features, noted in the urine early in toxaemia of pregnancy, are the evidences of an acidosis—acetone, diacetic acid, beta-oxybutyric acid. Usually at the beginning of hyperemesis acetone is found; if the condition improves it disappears, but if the condition becomes more serious, diacetic acid and beta-oxybutyric acid occur in addition. Symptoms preceeding eclamptic seizures show the same conditions. In either case, if the conditions become still more serious and liver changes are added, the consequent evidences of disturbed nitrogen partition in the urine are found.

The practical conclusions are, that the routine urine examination of pregnant women should include a search for evidences of faulty intestinal metabolism, so that this predisposing factor can have early attention. On occurrence of any of the clinical signs of toxaemia the degree of acidosis should be determined, and should this increase, then a repeated nitrogen partition will lend aid in determining the point of intoxication beyond which it is not safe to allow the patient to go. This point must be determined by the combined clinical and laboratory data, and cannot be fixed by some arbitrary degree of faulty nitrogen partition, as some patients are much more tolerant in this regard than others.

Concerning the value of blood examinations in the diagnosis of acute inflammatory lesions I shall take the liberty of reading to you some abstracts from a communication recently read on the subject. It is a gratifying fact that since the publication of my first paper, concerning the value of the differential leucocyte count in diagnosis and the added significance this gives to the leucocytosis, read before the Surgical Section of the New York Academy nearly two years ago, the matter has, at least by some, been given the attention I believe it deserves, with very happy results. Further evolution of this diagnostic aid has led to no change in the fundamental principles concerned, as follows:

The increase in the relative number of polynuclear cells is an indication of the severity of the toxic absorption, and the degree of leucocytosis an evidence of the body resistance toward this absorption. It is evident, from the above, that neither the differential leucocyte count alone, nor the actual leucocyte count alone is of any value, and if diagnostic data is to be had from the examination of the blood, it must be obtained from a consideration of these combined factors. Within reasonable limits, the figures obtained justify an inference as to the probable presence or absence of a purulent exudate. Purulent exudates are rarely if ever present with low polynuclear percentages irrespective of the height of the leucocyte count, while very high polynuclear percentages almost invariably indicate their presence even if the leucocyte count is low. My continued daily contact with cases in which this diagnostic aid is sought, strengthens, rather than weakens, my belief in this valuable adjunct in surgical diagnosis, presenting as it does, diagnostic and prognostic data, at a time when the clinical picture may be confusing. Since that time a number of criticisms have appeared which would tend to prove this diagnostic help of doubtful value, and it is unfortunate that such statements are usually made without proper regard to the fundamental principles on which the method is based, and enumerate a series of pitfalls without any mention of the much larger number of happy results. It is so self evident as to scarcely merit mention, that a blood examination can no more take the place of bedside observation than a urine analysis can indicate the presence of a diabetic coma without the bedside confirmation; still this is an argument frequently used against a purpose never intended by the most ardent advocates of the method. Figures have been quoted of cases where purulent exudates have been found without a relative polynuclear increase in the blood, with evident disregard of the fact that the pus was enclosed in such a way that no toxic absorption occurred, which explains the blood picture. Other groups of cases are mentioned in which high polynuclear percentages were unaccompanied by purulent exudate or gangrene, not mindful of the fact that such polynuclear increases may also be seen in other than suppurative conditions. As in every other technical procedure these different counts, in order to be at all accurate, demand a certain amount of technique and faithful execution frequently ascribed to the hospital interne, undeservedly in many instances as I know from personal experience.

While it is true that pitfalls and errors surround this as all other diagnostic methods, and it is of use only to the discriminating clinician who learns to apply it, still nobody can gainsay the fact that it fills a place occupied by nothing else. A few examples may be quoted to emphasize this point.

Take a case of severe pneumonia with high leucocytoses and pronounced relative polynuclear increase. A fall in the leucocyte count, with an increase in the polynuclear percentage, is a sign of impending danger and often preceeds the clinical signs of this danger by 12 to 24 hours.

A case of appendicitis with possible gangrene, or a case of otitis media with possible mastoid involvement, may present a complex of symptoms which possibly are coupled with conditions somewhat opposing operation, so that the surgeon is really in doubt as to the absolute necessity of interference. The differential count together with the leucocyte count, particularly if repeated, has been the direct cause of saving many of these cases by immediate operation of which I have record. In none of the examples quoted has the blood examination given any aid in the direct diagnosis, nor has it detracted one iota from the necessity for careful bedside observation, and still it is impossible to deny that it has been of great value to the clinician. Concerning the practical application of the method, I can use no more fitting words than by quoting from Dr. C. L. Gibson's paper in the *Annals of Surgery* of April of this year. The higher the polynuclear percentage as compared to the leucocyte count, the greater the probability of a purulent exudate. It is of value, chiefly, in indicating, fairly consistently, the existence of suppuration or gangrene as evidenced by an increase of the polynuclear cells disproportionately high as compared to the total leucocytosis. The greater the disproportion the surer are the findings, and in extreme disproportions the method has proved itself practically infallible. As the relative disproportion between the leucocytosis, and the percentage of polynuclear cells is so much more value than the findings based on a leucocyte count alone, this latter method should be abandoned in favor of the newer and more reliable procedure.

Dr. Gibson has also advocated the use of a standard chart which I heartily endorse; by means of it the important factor of the relation between polynuclear increase and leucocyte increase is graphically demonstrated.

Concerning the direct diagnostic and prognostic aids obtained in the different classes of cases from the use of this method, it was essential for me to tabulate in my earlier papers such cases in which I could obtain the necessary clinical data. This is obviously a difficult matter for the laboratory worker and as it has been done by clinical authorities, I will not pursue this branch of the subject, but I should like however to refer to Dr. Gibson's paper just quoted, as well as to a paper by Dr. Taylor read before the New York Obstetrical Society in February of this year.

Dr. J. F. McKernon has given this method of examination a careful trial in suppurative conditions associated with or following middle ear disease, and is also enthusiastic on this adjunct in diagnosis. He intends voicing his opinion and results at a meeting of the Surgical Section of the Academy in a few days. In a general way I may add that suppurative bone processes do not give us figures as high as we generally see in suppurative conditions in the soft tissues, probably on account of slower toxic absorption.

With my enthusiasm in advocating this diagnostic help in acute inflammatory lesions and differential diagnosis, I grant you that the procedure is still crude, and that many refinements are necessary in order to make it as useful as we would like, but this is only a question of research.

In closing I should like to add a few words concerning the disappointments and failures encountered in the application of the method. Children, particularly infants, do not give the uniform results obtained in adults. It must be recalled that in these the normal polynuclear percentage is a more variable quantity, and when they are severely infected, it seems that a drop in the polynuclear percentage may be due to a lack of ability to further absorb toxic material, thus indicating a graver rather than an improved condition.

When pus is confined in such a way that no toxic absorption occurs, or when a purulent exudate is the result of a tuberculosis or typhoid infection alone, there is no leucocytosis and no polynuclear increase. Experience also teaches that a mixed infection with or following tubercle bacilli or typhoid bacilli, does not show the high polynuclear percentages obtained in primary staphylococcus or streptococcus infection.

It is also found that the exact nature of the infection has a direct bearing on the degree of polynuclear increase, some organisms causing higher percentages than others, everything else being equal. A very small percentage of cases of error remains unexplained by the above, and in these one must conclude that we are led astray by drawing inferences from a specimen which does not happen to be a proper indicator of the circulating blood, even if the technique is as good as understood.

From my experience with the method I feel firmly convinced that it has gained a place as a diagnostic aid; that it merits every effort in the direction of improvement, and that the disappointments encountered should stimulate such effort rather than tend to condemn the procedure.

HISTORY OF THE SUFFOLK COUNTY MEDICAL SOCIETY.

BY FRANK OVERTON, M.D.,

PATCHOGUE, L. I.

PART II.

THE FOUNDING OF THE SUFFOLK COUNTY MEDICAL SOCIETY.

Previous to 1760 there seems to have been little or no legal regulation of the practice of medicine in New York State. In that year it was ordered that the Judges of the Courts should examine applicants in medicine and surgery and license those who seemed qualified. Judging by the learned patrons of quacks in the present day, any man with a bluff and plausible theory could receive a license. The growth of education as well as of quackery led to the law of April 4th, 1806. The main feature of this law was that within one year from the passage of the Act, the physicians of each county should organize themselves into a medical society for the purpose of examining and licensing practitioners of medicine. In accordance with this Act, the doctors of Suffolk County met in the following summer, and organized the Suffolk County Medical Society.

For the data concerning the founding of the Society we are indebted to two of its members, Drs. A. G. Thompson of Islip, who discovered the data, and Dr. D. F. Thayer of Riverhead, who recorded it in the minute book.

Dr. Abraham Gardiner Thompson was born in New York City in 1816. He graduated from Columbia in 1833, and from College of Physicians and Surgeons in 1837. He served in Bellevue, where he became famous for an investigation of an epidemic of typhus. He studied in Europe and in 1851 came to Islip and practiced medicine and pharmacy there, until his death on September 26, 1887. His name appears often on the minute book as taking prominent part in the discussions, and he seems to have been a leader in medical lines.

Dr. Foster Thayer served the Society for many years as Secretary, and still lives in Riverhead.

On page 135 of the old minute book of the Suffolk County Medical Society appears the following note, written about 1879:

"At an adjourned meeting of the physicians of Suffolk County, New York, at the County Hall, on the 22d day of July, 1806, the following gentlemen were elected officers for the ensuing year, to wit:

David Conklin, President; John Howard, Vice-President; Moses Blatchley, Secretary (pronounced Blaychlee); David Woodhull, Treasurer; John Howard, Moses Blatchley, Oliver Brown, Censors, and John Gardiner, Delegate to the New York State Medical Society.

The anniversary meeting of the Suffolk County Medical Society will be held at the County Hall on the first Tuesday in July next, at ten o'clock in the morning or forenoon of such day.

MOSES BLATCHLEY,
Secretary.

To the Clerk of Suffolk County. Recorded the 4th day of August, 1806.

DR. E. L. L'HOMMEDIEU, M.D."

A search of the County Clerk's Office fails to reveal this record. Probably it will come to light recorded in some mouse-eaten book, among other miscellaneous records.

Of the founders of the Society we know little. Dr. David Conklin practiced in the vicinity of Riverhead, and Dr. Oliver Brown and Dr. Blatchley were at Huntington; Dr. John Gardiner, a descendant of Lion Gardiner, of Gardiner's Island, sleeps in the old Southold cemetry beside a large marble slab on which the following lengthy inscription is beautifully carved:

"IN MEMORY OF
Doct. JOHN GARDINER
WHO DIED OCT. 21, 1823.

Of a character at once open, decisive and sincere—possessing an active disposition, he early embarked in his professional capacity in the service of his country during the Revolutionary War of Independence:—he was repeatedly taken prisoner before the consummation of that glorious epoch, and continued even after, until his death, to cherish sentiments of the most ardent patriotism.

In social intercourse, agreeable and instructive and as ready to repair as he may have been hasty in committing a fault:—He was ever obliging and truly a lover of mankind.

In his professional pursuit active and successful. As a father incomparable. Enjoying the consolations of religion, his hopes of happiness, hereafter, rested on the merits of a blessed Redeemer, to enjoy whose presence in company with those whose remains now slumber beside his, was a sentiment often expressed by him while living.

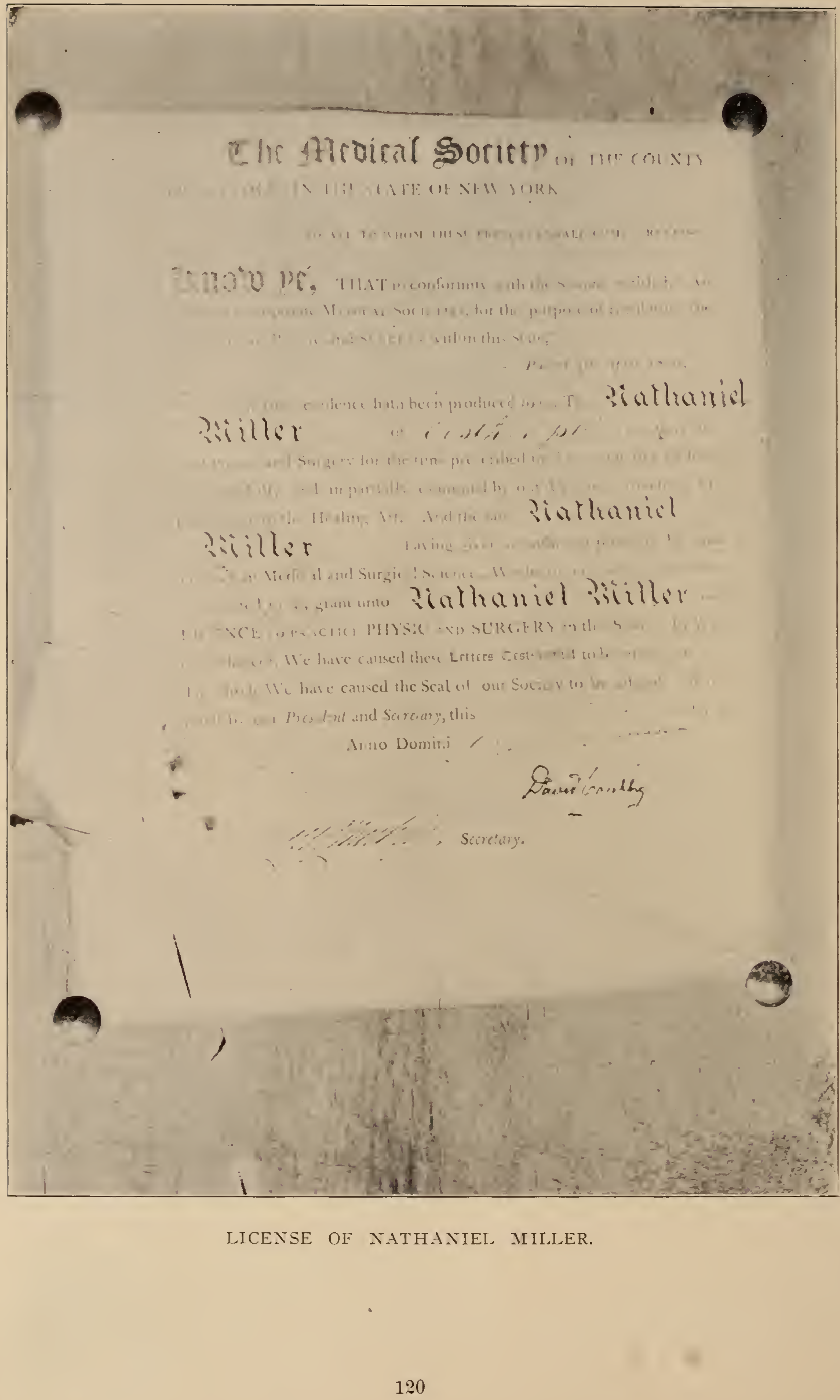
Recte faciendo neminem timeas."

Dr. Gardiner was a native of Cutchogue. During the Revolution he saw service on board the American Frigate "Confederacy," and after the War practiced in Southold until his death.

A physician who undoubtedly was active in the early days of the Society was Dr. Richard Udall, of Islip. He was born there in 1751, and graduated from the New York Medical College. He practiced on the West India Island of Antigua, but about 1800 he returned to Islip and continued in active practice for over a quarter of a century. He died in 1841, aged 90.

NATHANIEL MILLER.

The early minutes of the Society are lost. None previous to 1854 are known to be extant. Doubtless, the meetings were poorly attended, and infrequently held. Of the early activity of the Society, the only evidence which the writer has found is the license which the Society issued to Dr. Nathaniel Miller, in 1807. Dr. Miller was born in Easthampton in 1784. He was a student at the New York Medical College. He was licensed by the Suffolk County Society in 1807, and practiced medicine at Brookhaven until his death in 1863. His license reads as follows:



The Medical Society of the County [illegible] in the State of New York

To all to whom these presents shall come, greeting:

Know Ye, THAT in conformity with the Statute [illegible] Medical Societies, for the purpose of regulating the [illegible] SURGERY within this State;

Passed [illegible]

[illegible] evidence hath been produced to us That Nathaniel Miller of [illegible] Physic and Surgery for the term prescribed [illegible] and impartially examined by [illegible] the Healing Art. And the said Nathaniel Miller having given [illegible] Medical and Surgical Science, We do [illegible] grant unto Nathaniel Miller [illegible] LICENCE to practice PHYSIC and SURGERY in the State [illegible] We have caused these Letters Testimonial to be [illegible] We have caused the Seal of our Society to be affixed [illegible] our *President* and *Secretary*, this [illegible]

Anno Domini [illegible]

David [illegible]

[illegible], *Secretary.*

LICENSE OF NATHANIEL MILLER.

THE MEDICAL SOCIETY OF THE COUNTY OF SUFFOLK, IN THE STATE OF NEW YORK.

To All Whom These Presents Shall Come, Greeting:

Know ye, THAT, in conformity with the Statute, entitled: An Act to incorporate MEDICAL SOCIETIES, for the purpose of regulating the Practice of Physic and Surgery within this State,

Passed 4th April, 1806,

Satisfactory evidence hath been produced to us, That Nathaniel Miller, of Easthampton, has duly studied Physic and Surgery for the time prescribed by law . . . . and that he hath been carefully and impartially examined by our Censors, touching his knowledge in the Healing Art. And the said Nathaniel Miller having given us sufficient proofs of his proficiency in Medical and Surgical Science . . . . We do, in pursuance of the power invested in us, grant unto Nathaniel Miller our license to practice Physics and Surgery in this State. In Witness Whereof, We have caused these Letters Testimonial to be made public . . . . To which we have caused the seal of our Society to be affixed, and testified by our President and Secretary, this twenty-first day of July, Anno Domini, 1807.

David Conkling, *President.*
Moses Blatchley, *Secretary.*

From the fact that the license is printed on a blank form of real skin parchment, we judge that a supply had been obtained, and in all probability, many were used. These are the only authentic record of the early days of the Society that the writer has been able to find. Among an old list of members recorded in the back of the old minute book is the following:

"Died 1880.

Dr. George L. Huntington, East Hampton, Licentiate of the Suffolk Co. Medical Society, October 2, 1832, at which time Nathaniel Miller was President and Joshua Fanning Secretary."

There is a tradition that in its early days a meeting of the Society was called to settle a dispute between two of its shining lights. It seems that one member had called another member in consultation, and at the funeral there was a dispute as to which of the two doctors should have the honor of preceding the body of the patient to the grave.

The old minute book of the Society which was in use up to 1904, contains records of meetings from May 23, 1854, up to and including that of October 6, 1857. Then the minutes were renewed on April 26, 1870. From that date to the present there is an unusually full record. Many of the minutes contain full outlines of all discussions, trivial as well as weighty. For example, on page 141:

"It was moved that the next meeting be held at Yaphank, a very cordial invitation having been extended on the part of Dr. James I. Baker, to accommodate the members of the Society in separate apartments in the lunatic department of the alms house, feed them well, etc., if they would only try to agree to come to a conclusion to meet there. Necessarily debate ensued among the threatened lunatics as to the particular location, time and so on for the next meeting. (See Paradise Lost, Books I, II, &c.). But finally the motion was seconded and passed to meet at Yaphank alms house, on Tuesday, October 28, 1879, at 1 P. M. As a special encouragement, Dr. J. I. Baker was understood to offer the Society an opportunity to inspect the choice collection of curious living specimens which he has carefully put up in the various compartments of the museum in his charge."

On page 154, the minutes of April 23, 1880, contain a discussion on diphtheria, in which one man favored the "Idea of its contagious and infectious character" and another "Made some remarks as to the probable truth of the bacteria theory of causation and contagion." On page 158, Dr. W. S. Preston related a case, where a barrel buried in the ground, and half-filled with decaying vegetables, caused a quite severe sickness of chills and fever, but he did not mention mosquitoes. From the minutes of the '70's and '80's the progress and development of modern medicine and surgery may be traced. If the early minutes could be found, they would probably contain references to such heresies as Thompsonianism, which flourished in the '30's and '40's. In Bellport there still lives a man, now eighty-four years of age, who in 1841 was smitten with Southern fever, so that he was completely paralyzed, not being able even to open his mouth. He was treated with mercury by two skilled physicians, both of whom have served this Society as President. Given up to die, a Thompsonian doctor, as the patient himself tells the story, got the mercury out of the system by a plentiful use of roots, together with alternate steamings and immersions in ice water. At any rate, he survived both treatments, and with the exception of a slight muscular ataxia, has been strong and well ever since. Competing with faddists, bone setters and squaw doctors, a physician's life fifty or a hundred years ago, was far from rosy.

With the founding of the Associated Physicians of Long Island in 1898, the County Society gained a new impetus. The incentive to share in the social and scientific benefits of the greater Society has stirred the members to a greater interest in the local organization. So highly do the physicians of Suffolk County value these two Societies, that last year, so far as was known, only three or four physicians had failed to join, and every member of the County Society had been initiated into the Associated Physicians.

On April 26, 1906, the Society unanimously voted to adopt the bylaws of the New York State Medical Society, and thereby share in the benefits of a Society which is still a degree higher than the Associated Physicians. Thus our organization is now like a fraternal lodge of three degrees, in all of which continued membership in the County Society is essential.

The results of the work of these Societies are evident even to a layman. To no other cause than the County Society can be ascribed the universal friendliness among the physicians of Suffolk County, so that from being a byword of discord, the medical fraternity might now be held up as an example of typical brotherly conduct.

Twice each year the physicians of the County meet to break bread together, and to discuss matters which are of benefit not only to themselves, but to the whole community. No body of men are working from purer motives or with loftier aims than the eighty members who constitute the present Suffolk County Medical Society.

WILLARD PARKER AND HIS MEDICAL LIBRARY.*

By JAMES P. WARBASSE, M.D.,

BROOKLYN, NEW YORK.

I HAVE the honor and great pleasure to announce the donation to this society of the medical library of the late Willard Parker by his son, Dr Willard Parker, of New York. This is a collection of over 4,000 volumes, and contains a large number of rare and valuable works. It is a general medical library, embracing all of the departments of medical learning, and represents the medical literary tastes of a man who was the greatest ornament of his time to the medical profession of New York. It is particularly rich in early American medical works, which in these days of completing libraries are so much sought after. It contains also some valuable complete files of periodicals and a number of rare and classical works. Among these may be mentioned:

Hippocrates' Complete Works (Latin). Frankfort, MDCXXI.

Several Chirurgical Treatises. By Richard Wiseman, London, 1686.

A. Corn. Celsi Medicinæ. Patavii, MDCCLXIX.

Les Oevres d'Ambroise Paré. Lyon, MDCLII.

Médécins et Chirurgiens Célèbres: Roselin, Paris.

Atlas der Hautkrankheiten (2 vols.): Hebra u. Elfinger. Wien, 1856.

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*Remarks made before the Medical Society of the County of Kings, October 16, 1906.

Historiæ Morborum: Franciscus Roncalli Parolinus. Brixiæ, MDCCXLI.

Maladies de la Peau: J. L. Alibert. Paris, MDCCCVI.

Maladies des Reins: Rayer. Paris, 1837.

James's Medical Dictionary (3 vols.). Dedicated to Dr. Mead. London, MDCCXLIII.

Maclise's Surgical Anatomy. Philadelphia, 1851.

Pharmacopœa Wirtembergica. Stutgardia, MDCCXCVIII.

Iconographie Ophthalmoligique: J. Sichel. Paris, 1852.

Mitchell's Engravings from the "Tabulæ Neurologicæ" of Antonio Scarpa. Edinburgh, 1829.

Fisher's Description of the Small Pox. Boston, 1829.

Crosse's Treatise on the Urinary Calculus. London, 1841.

Rayer's Atlas of Diseases of the Skin. Paris, 1835.

Such acquisitions as this, along with the recently acquired Cutter library, the Watson collection, the Purple collection, the Bell collection, and the Jones library, are steadily advancing the interests of the library of this society. These volumes which we have just received will be marked with an appropriate book plate, showing the source of the books, and will always be known as the Willard Parker collection.

Upon this occasion it is most appropriate to recall to our minds the man who gathered these books about him, who lived and worked among them, and whose servants they were. Willard Parker was born on a farm in New Hampshire, in the year 1800. He was successively farmer and school-teacher, and prepared himself for Harvard by his own labors. He graduated in 1826, and nearly succumbed to inducements to enter the ministry. The change of mind came about in this way: A freshman classmate had an hernia, which became irreducible, and John Collins Warren was called to his aid. Parker was so impressed by the value of the services which the surgeon rendered in reducing the hernia, that he resolved to devote his life to the study and practice of the healing art; and through this accident he thus happily escaped the yoke of dogmatic theology, and pursued a life of inestimable usefulness.

He followed his medical studies in Boston, and served for two years as resident officer in the Chelsia Marine Hospital. Soon after receiving his medical degree he was appointed professor of anatomy in the Berkshire County Medical College at Pittsfield, Mass. This was in the days of the peripatetic professor, and of didactic teaching without clinics, when some of the best medical instruction was given at the colleges in small country towns. At this school, besides Parker, were Alonzo Clark, Elisha Bartlett, and Robert Watts, all of whom later became professors in the College of Physicians and Surgeons in New York. In 1832 he was appointed professor of surgery in the Pittsfield school, and for four years he held both chairs, and lectured twice daily. In 1836 he was appointed professor of surgery in the Cincinnati Medical College, where he remained for three years, visiting England and France in the meantime. His case records are written carefully and neatly, and among the experiences recorded in Cincinnati, we find the account of the surgical attentions which he rendered, in the first days of steamboat navigation on the Ohio River, on the occasion of the blowing up of a steamboat and the loss of some forty persons.

In 1839 he was called to the chair of surgery in the College of Physicians and Surgeons in this city, where for more than thirty years he labored with unabating zeal as professor of the principles and practice of surgery. With James R. Wood, he reorganized the Almshouse at Bellevue into a hospital, and for many years was an attending surgeon. He was appointed surgeon to the New York Hospital in 1856; and upon the establishment of St. Luke's, Roosevelt, and the Mt. Sinai hospitals, he was made a member of the surgical staffs.

During this period of his activity he was the most conspicuous figure in New York medicine. I am told that he was a man of great personal magnetism, power, and of strikingly handsome presence. Although a surgeon he was a master of all of the departments of medicine, and he was called upon as a consultant in every class of medical emergency. He was so broad a man that he never could confine himself to any single field of practice. He was a man of great common sense, practical, and a keen observer. Always self-possessed, he was the master of every situation that confronted him. Although he respected books and honored tradition, still he regarded experience as the greatest teacher. He was most sagacious in diagnosis.

One of his great values to the community was his interest in the public welfare. He devoted himself to charity organizations. To him and to John O. Stone the City of New York is indebted for the organization of its Health Department, which has made it one of the most efficient in the country. Busy as he was, he took time to come to Brooklyn forty years ago for Henry Ward Beecher, and deliver a course of four public lectures on hygiene at Plymouth Church.

He sought the truth. His scrapbook shows clippings from addresses by Huxley at a time when the dominant churchly influence made it decidedly unfashionable to be interested in knowing the truth. He loved to teach. It was as a teacher that he was pre-eminent. His lectures were full of inspiration. Many of his pupils have been and still are members of this society, and the earnest devotion which he gave to his subject is felt to-day in this medical community. He aimed to lift others to the highest ideals in professional work.

It is said that the surgical clinic which he established in Crosby street was the first attempt made in this country to combine the demonstration of patients with didactic teaching. In clinical teaching he was at his best. His friend, William H. Draper, said of him: "Here, unfettered by the restrictions exacted by the orderly arrangement of didactic discourse, he could give free play to the natural working of his own mind in the diagnosis and treatment of disease and injury. When he entered the amphitheatre his presence seemed to fill it; he rivetted attention; he had a magnetic power that instantly roused, so to speak, the polarity of every intelligence about him. His glance was an inspiration, and his voice like the voice of a prophet. His manner towards his patients commanded confidence and assured sympathy. He seemed often to touch the point of disease as with the spear of an Ithuriel, and to invest the art of healing with the quality of a divine gift."

He was the originator of the operation of cystotomy for the relief of painful cystitis, which he first performed in 1850. He was the first in this country, systematically, to operate for perityphlitic abscess. Although painstaking and accurate in the records of his cases, he wrote but little for publication. He was too busy with the more active interests of his professional work. Shortly before his death he compiled from his records the material for a report on cancer, embodying a study of some four hundred cases of cancer of the breast. He died before it was completed, and the work was published by his son, as he had wished it should be.

Doctor Parker died at the age of eighty-four, and left the world the rich legacy of the influence and inspiration of a man who was above jealousy and conceit, who loved his profession and his fellow men, and whose vision was always turned towards the light.

The library of this eminent man has now been brought by his son from its retirement as a private collection, and placed at the service of the profession which its founder loved so well. Many such libraries have been broken up and scattered. Honor is due to the Willard Parker who collected these books for his own joy and instruction; honor and gratitude are due to Willard Parker, the son, who preserved them intact, and now in a spirit of far-sightedness and noble generosity hands them to this library as trustee and custodian for the whole medical profession for all time.

PROGRESS IN SURGERY

EDITED BY

RUSSELL S. FOWLER, M.D.

Chief Surgeon First Division German Hospital; Attending Surgeon Methodist Episcopal (Seney) Hospital, Brooklyn, N. Y.

CONSIDERATIONS CONCERNING THE TIME FOR OPERATING IN APPENDICITIS, WITH PARTICULAR REFERENCE TO THE GERMAN VIEWPOINT.

It was the unanimous opinion of the Deutsche Chirurgen Kongress of 1905 that the time for operating in appendicitis was in the early stage of the disease. Previous to this time there was a wide divergence of opinion among German surgeons as to the advisability of early operation. Years before this early operation had been quite universally practiced by American surgeons and advocated as a prophylactic measure in recurrent cases. George R. Fowler, in 1894, expressed the consensus of opinion of the American surgeons of that date when he wrote in his first monograph on appendicitis: "As soon as the diagnosis of progressive appendicitis is assured, the abdominal cavity should be opened, and the appendix removed. If opinion has been injudiciously administered, and the progressive character of the case in hand is doubtful, it is better to err upon the side of safety and remove the appendix at once. The conditions present are usually beyond the power of nature to remedy, while in the hands of a surgeon who pays strict attention to aseptic details * * * the latter involves less risk to life than that which is involved in even a mild attack of appendicitis, which remain stationary at the end of twenty-four hours, etc." Again, in 1900, in his second monograph on the subject, the necessity for early operation was further emphasized. Time has proved the soundness of these views.

The question which is now agitating the surgical world in Germany in regard to appendicitis is whether or not to operate in the intermediary stage. A word of explanation is necessary in regard to the commonly accepted German view of the so-called stages of appendicitis. The first stage is referred to by some Germans as the first forty-eight hours, by others as the first thirty-six hours. By the intermediate stage is meant the period following the first thirty-six or forty-eight hours and extending to the fifth day. The stage following the fifth day is called the late stage of the disease. No more pernicious methods of dividing the disease into hard and fast stages could be imagined. Such a classification utterly fails to take into account the type of inflammation present, and for this very reason give most fallacious statistics of operation done in the so-called intermediary stage. Appendicitis presents itself in such an infinite variety of types that to divide it into stages according to the length of time the disease has existed in any given case can but result at best in the utmost confusion of ideas.

Kuttner (*Berliner klin. Wochenschrift,* 1905, *N.* 39) an internist, prefers operation to expectant treatment, if after twenty-four hours there is no improvement, particularly if the temperature increases. Every case of "general" peritonitis should be operated upon in the first twenty-four hours. If the diagnosis is made after forty-eight hours, expectant treatment gives better results than operative. The disease is more severe in children than in adults. If a given case cannot be closely watched it is better to operate immediately. The appendix should be subsequently removed if this was not done during the attack. Chronic cases are to have the appendix removed if the diagnosis is assured. If, in a chronic case, an acute attack supervenes the appendix should be removed either at the beginning of the attack or directly upon its subsidence. The clinical symptoms cannot be relied upon to give any reliable indication of the exact pathological condition present. Mild symptoms may accompany the most severe pathological changes. Pregnancy does not predispose to appendicitis, but may give rise to a renewed attack in a chronically inflamed appendix. If pus forms the pregnancy is interrupted as a rule. Early operation is indicated, as the appendicitis of pregnancy is more severe than in other patients. If labor has already begun the uterus should be emptied.

The views of Kuttner are particularly interesting, as showing the tendency of the internist to come more and more in accord with the conception of the surgeon as regards the surgical nature of appendicitis.

R. v. Hippel, of Kassel, (*Sammlung klin. Vorträge, N. F., No.* 411) with an experience of but sixty-four cases concludes that chronic cases should all be operated, as medical treatment is useless. He advises early operation when during the first twenty-four hours the symptoms have not subsided, while hyper-acute cases should be operated in the first twenty-four hours.

Lanz, of Amsterdam, (*Münchener med. Wochenschrift,* 1906, *No.* 4.) who has not lost a case in his 710 appendectomics considers early operations and interval operations free from danger. To operate during the height of the attack is more dangerous than waiting and later opening the abscess and draining. He does not remove the appendix in such cases unless it can be done easily, but contents himself with simple drainage. The time for the interval operation depends upon the rapidity with which the exerdate is resorbed. In those resorbing slowly he waits three months before removing the appendix.

Gunkel, of Fulda (*Münchener med. Wochenschrift, 1906, No. 4*), from a consideration of forty-five cases under his care during 1905, concludes that the symptoms cannot be relied upon to denote the real nature of the attack. He advises operating in the first forty-eight hours.

Graver, of Erlanger (*Münchener med. Wochenschrift, 1906, No. 4*) concludes that all severe cases, with extensive tenderness and diffuse tension, should be operated in the first thirty-six hours. On the third day operation is difficult and dangerous. Even in late cases some will be saved by operation.

W. Hagen, of Nürnberg (*Z. f. Ch.* 1906, *p.* 417) discusses what to do when appendicitis is seen in the intermediate stage. In 287 cases, there were 50 early operations with no deaths; 171 late cases with 29 per cent. mortality. Of these 40 were circumscribed abscesses (second to fifth day) 14 of these cases were treated expectantly with no deaths, while of 26 operated upon 9 died. Hagen claims these 9 deaths were traceable to the operation. The number of cases is far too small to draw deductions from, but Hagen advises not operating during the height of the acute stage; during the intermediate stage operation may spread the infection, and be of itself dangerous. Hagen says the high mortality of the intermediate stage is increased by operation. Cases in this stage should be carefully watched, and when a favorable moment arrives operation should be performed. He strongly advises operation early in the attack. Hagen enters into a defense of his position, and endeavors to show how the intermediate stage differs from the early stage. At the end of 36 hours slight encapsulation occurs; local leucocytosis remains stationary. If new areas become involved the local leucocytosis is increased. Operations in the intermediate stage open up new avenues for infection. The intermediate stage is the most dangerous for the patient, and should be closely watched by the surgeon. Should the process become progressive, operation is indicated.

Sprengel (*v. Langenbeck's Archiv. Bd. LXXIX Hft I*) calls attention to indefinite opinions as to what constitutes the intermediate stage. He considers the first and second day as the early stage, the second to the fifth day as the intermediate, and after the fifth day as the late stage. Early operation is the most rational treatment. In his cases operated in the first thirty-six hours there were no deaths. In those operated in the first 48 hours, the mortality was 5 per cent. He does not consider operation in the intermediate stage as dangerous as was formerly thought, the prognosis depending upon whether the peritonitis is localized or diffuse. The virulence of the bacteria does not play so great a part as the resistance of the peritoneum, which is greatest in the beginning when the early exudate is pressed into the peritoneal cavity. The resistence decreases as the infection becomes circumscribed. Sprengel has had some unfortunate experiences in operating in the late stage, and here he simply incised the abscess and does not seek to remove the appendix.

O. Kappler (*Deutsche Zeitschrift f. Chir. vol.* 81, *p.* 479), as a result of an experience with 150 cases,—16 operated early with one death; 42 (localized abscess cases) operated in the intermediate stage, in 24 of which the appendix was removed, with 4 deaths; 14 late operations with 11 deaths,—advises an early operation.

Krecke, or München (*Münchener med. Wochenschrift,* 1906, *No.* 15) says that painful tension demands immediate operation. A pulse rate over 100 demands immediate operation, thus a low pulse may occur in severe cases. Repeated vomiting and acute pain not relieved by ice indicates a severe case. The temperature plays no significant rôle. Costal type of respiration, with rapid breathing, is an unfavorable sign. One unfavorable symptom should have more weight in judging the case than four favorable ones. When the diagnosis of a distinctive inflammation of the appendix is made operation should follow within two hours.

E. Höhne (*Med. Klinik,* 1906, *No.* 19) recommends early operation, but claims that in the army it is justifiable to use expectant treatment more freely.

Krehl (*Deutsche med. Wochenschrift,* 1906, *No.* 17) advises early operation in severe cases. He does not recommend interval operation in all cases. L. Gelpke (*Med. Klinik,* 1906, *p.* 704) as a result of a study of 153 cases operated upon, 45 expectantly treated and of 60 cases expectantly treated in private practice, decided that all severe cases should be operated upon in the early stage. He treats mild cases expectantly, but advises removal of the appendix in the early stage of the next attack. Subsequent to simple opening of abscess only 5 per cent. of cases have recurrences; therefore, we are not obliged to perform an internal operation in these cases.

Prof. Paolo Fiori (*Z. f. Chir., 1906, No. 41*) states that the time for the early operation is between 36 and 72 hours (some consider the third day as belonging to the second stage). The total mortality varies up to 18 per cent. Körte places the third day mortality at 36 per cent. In the intermediate stage, after the third day most surgeons advise expectant treatment. Cases with a progressive tendency should be operated upon immediately. [Hagen has said he cannot recommend an operation in the intermediate stage that gives a mortality of 35 per cent. Biondi disputes this stand (*Policlinics Sez. practica, 1906, No. 2*), advising operation in the second (intermediate stage), citing 53 cases operated after the third day, with four deaths. This recalls Dienlafry's maxim: "To wait until appendicitis has subsided is to expose the patient to the danger of death."] Fiori has operated on ten cases in the third to the seventeenth day, with one death, and this from ileus paraliticus. There was no spreading of infection caused by the operation in any of these cases. He disputes the general (?) opinion that adhesions are always present which wall off the inflammation and justify waiting. He agrees with Nélaton, Tuffier, Sprengel, Riedel, Leguen and Biondi that armed waiting is based upon theoretic rather than practical grounds. Also that the symptomatology is often deceiving. He advises operation at any stage as soon as the diagnosis is assured.

Kümmell (*Deutsche med. Wochenschrift, 1906, No. 33*) advises against expectant treatment and for immediate operation. Wette (*Mitteil. aus den Grenzgebieten der med. u. Chir. Bd. XVI. Hft.* 3) strongly advocates early operation. Of 81 cases operated in the first 48 hours, two died. M. Joffé (*Berliner klin. Wochenschrift,* 1906, *No.* 18) advises early operation in all cases up to the 45th year. Late operation should, in general, only be done when the process is still active. In other late cases the possibilities of expectant treatment should be tried.

From a consideration of these communications it is seen that the question of operating in the intermediate stage is still a matter of discussion in German circles, though it is to be noted that there is a constantly increasing disposition to operate in all cases as soon as the diagnosis is made and in whatever stage of the disease the case is seen. In this the Germans are approaching the American viewpoint.

TRANSACTIONS

OF THE

ASSOCIATED PHYSICIANS OF LONG ISLAND.

Ninth Annual Meeting (Twenty-seventh Regular Meeting), January 19, 1907, held at 1313 Bedford Avenue, Brooklyn, N. Y.

The President, E. H. Bartley, M.D., in the chair.

The meeting was called to order, and the minutes of the previous meeting read and approved.

Drs. Barber, Ross and Lanehart were appointed as a Nominating Committee.

REPORT OF MEMBERSHIP COMMITTEE.

The following names were reported by the Membership Committee and duly elected to membership:

Ferd. C. Valentine, Belle Harbor, Rockaway Beach.

J. L. Johnson, Riverhead.

Brooklyn.

Bruce G. Blackmar, 317 Ovington Ave.; Frank Bethel Cross, 141 Seventh Ave.; J. H. Sterling, 45 Hanson Place; Theodore C. Guenther, 20 Seventh Ave.; Arthur H. Longstreet, 20 Seventh Ave.; Clarence H. Hulse, 206 Monitor St.; G. A. H. Smith, 313 Sixth Ave.; Frederic H. Colton, 136 Montague St.; Oswald Joerg, 12 Schermerhorn St.; William Dillon, 192 N. 6th St.; William A. DeLong, 170 Bainbridge St.; Benjamin Ayres, 213 Jefferson Ave.; Carroll Chase, 1045 Prospect Place; Herman C. Riggs, 117 Montague St.; F. Burton Otis, 369 Hancock St.; Benjamin Edson, 83 St. Marks Ave.; Philip W. T. Moxom, 1807 Ditmas Ave.; P. H. Berlenbach, 9 Stuyvesant Ave.; Frank E. A. Stoney, 229 82d St.; Francis Augustine Schlitz, 28 Jefferson St.; Bernhard Stern, 2604 Avenue F; Emil Rauth, 695 Lafayette Ave.; Gerard Kasper, 1320 Bushwick Ave.; Alec Nicol Thomson, 835 Park Place; Joseph W. Walsh, 154 McDonough St.; Frank E. Brown, 591 Hancock St.; John B. Byrne, Jr., 224a Sixth Ave.; Carl Fulda, 1096 Halsey St.; Lester Page Hoole, 974 St. Marks Ave.; Stanislaw Joseph Alkier, 6 Sumner Ave.; Francis B. Doyle, 311 State St.; Luther Taylor Jackman, 257 12th St.; Samuel A. Marshall, 34 Halsey St.; James P. Becker, 1089 Dean St.; J. Eddy Blake, 352 Jefferson Ave.; Claude G. Crane, 119 Halsey St.; Albert T. Griffiths, 1115 Ocean Ave.; George H. Reichers, 1411 Bushwick Ave.; William A. Seimel, 589 Lorimer St.

REPORT OF SECRETARY.

Mr. President: Your secretary has to report another year of success for the Associated Physicians of Long Island.

The Annual Meeting was held, as usual, in Brooklyn, January 27th, the summer meeting on the 23d of June at Long Beach, and the fall meeting at Greenpoint on October 13th

The most important event of the Society's year was the plan to discontinue the publication of the "Transactions," and instead to publish a monthly journal to be known as the *Long Island Medical Journal*; a plan already operative.

The total membership at the present time is 507. Of this number 501 are active members, and 6 honorary. Of the 501 active members 137 are from Queens, Nassau and Suffolk counties, and 364 from Kings.

During the year there have been five deaths and five resignations. The usual appreciated courtesies have been extended by the Long Island Railroad.

JAMES COLE HANCOCK.

The report of the Secretary was read, accepted and ordered filed.

The report of the Treasurer was read, and referred to an Auditing Committee, who reported at the close of the meeting that they had examined the accounts and vouchers of the Treasurer, and had found them to be correct. The report was accepted and ordered filed.

The Secretary of the Historical Committee reported the deaths of the following members:

George. Wackerhagen, P. and S., N. Y., 1869, died July 25, 1905; George Ryerson Fowler, Bellevue, 1871, died February 6, 1906; Joseph Edgar Wells, Jefferson, 1887, died February 26, 1906; Charles Louis Fincke, L. I. C. H., 1899, died March 19, 1906; Edgar Arthur Day, L. I. C. H., 1887, died May 16, 1906; Edward Atwood Wheeler, Bellevue, 1879, died September 19, 1906; Charles Jenkins Finn, Bellevue, 1876, died November 3, 1906.

A motion was carried that the Historical Committee be requested to prepare obituary notices in case of the death of any member, and furnish a copy to the *Long Island Medical Journal* for publication.

The Chairman of the Committee on Publication made a verbal report, making recommendations as to furnishing reprints to the authors of papers published in the *Long Island Medical Journal*, and other matters in connection with the publication of that journal.

These recommendations were referred to the Board of Directors for their consideration and such action as they found warranted.

The Committee on Nominations reported as follows:

For President, Arthur H. Terry; 1*st Vice-President,* Frank Overton; 2*d Vice-President,* H. B. Delatour; 3*d Vice-President,* George K. Meynen; *Secretary,* James Cole Hancock; *Treasurer,* Charles B. Bacon.

The Secretary was empowered to cast the ballot of the Association for the gentlemen named, and they were declared elected.

SCIENTIFIC SESSION.

Dr. Thomas R. French, Chairman.

PAPER.

"Preliminary Report on Typhoid Fever on Long Island." By Dr. H. E. Hewlett, Babylon.

PAPER.

"Tetanus in the Eastern District of Long Island." By Dr. Frank Overton, Patchogue.

PAPER.

"Tetanus in Brooklyn and the Bacteriology of Tetanus." By Dr. J. M. Van Cott, Brooklyn.

PAPER.

"Comments and Conclusions as to Tetanus in Eastern Long Island." By Dr. B. D. Skinner, Greenport.

PAPER.

"Preliminary Report on Malaria on Long Island." By Dr. G. H. Turrell, Smithtown Branch.

The Chairman, Dr. Bartley, then installed Dr. Terry as President of the Society.

Adjourned.

JAMES COLE HANCOCK,
Secretary.

TRANSACTIONS

OF THE

BROOKLYN PATHOLOGICAL SOCIETY

EDITED BY CLAUDE G. CRANE, M.D.

472d Regular Meeting, December 13, 1906.

The President, R. W. WESTBROOK, M.D., in the Chair.

PATHOLOGICAL WORK IN BROOKLYN HOSPITALS.*

By THURSTON H. DEXTER, M.D.,

BROOKLYN, NEW YORK.

THE system of university and governmental control and subsidy in vogue in the large centers of Europe is so unlike in its scope and spirit anything attempted in this democracy of ours that it offers hardly a fair measure of comparison. On the other hand, our sister borough presents a field that, at a distance at least, looks very fair and fertile, in which to gather methods and precepts, for the advancement of laboratory work in the hospitals this side of the river.

"The Polyclinic," "The Post-Graduate," "The New York," "The Presbyterian" and other hospitals seemed from this vantage to be the meccas of medicine. I have found that, with not a few of them, the enchantment was in direct ratio to the distance. I believe there is much that is valuable that we may learn from Manhattan just as truly as I believe that there is much equally valuable that Manhattan may learn from us.

There is a well founded belief that we do not get as many autopsies as we should. There seems to be a unanimity of opinion as to the reasons for this; and the hospital necroscopists are as one in dividing the responsibility for the major portion of the defection, between the hospital office and the undertaker.

An expurgated version of what the man who desired the autopsy says would be something like this: "The relatives would have consented if the undertaker had not told them that a lot of young doctors at the hospital would cut their dead all to pieces, disfiguring the corpse, and rendering it unfit for embalming."

This the undertaker generally does say, embellishing his statement with weird stories of previous experiences with the ghouls. On the other hand, the undertaker justifies his stand somewhat in the following fashion: "I go to the hospital and call for the corpse, and an orderly sticks his head out of the door and says, 'You can't come in now; we are not through.' I kick my heels in the yard for an hour or two, with the thermometer down to zero, wondering when I'll get through with my other work. After the doctors are satisfied, and the orderly has sewed up the man with some sort of catch-as-catch-can stitch, I am allowed to go inside to wash the blood and more objectionable material off the subject, and to embalm it. After injecting a large quantity of embalming fluid I begin to see results, and, from all the natural orifices, comes back, diluted and polluted, the material I am injecting. I am fortunate if the orderly's drop-stitch work does not give way and the corps' viscera fall out of his abdominal cavity, compelling me to begin all over again."

The undertaker is a real difficulty,

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*Read before the Brooklyn Pathological Society, December 13, 1906.

and he probably will be the last to be overcome.

An organization in which undertakers and pathologists could meet on a common footing and exchange views—one in which could be disseminated the spirit of the common brotherhood of man, including pathologists and undertakers—I presume, would not be feasible; but it is not outside the realm of the possible, that a reasonable desire and precaution on the part of the necroscopist, and attendant to leave the subject in a fit condition for the undertaker, might, in the course of time, be met by a spirit of conciliation on the latter's part. This idea could be carried out without material inconvenience, to the extent of getting into early communication, personally or by telephone, with the undertaker in charge of the subject, and making known to him the desire to save him unnecessary extra work.

One Manhattan hospital chooses as a more forceful argument the judicious distribution of five and ten dollar bills.

If such a step as I have suggested were adopted, it would be foolish to delegate its duties to one of the pathological staff; but rather should they devolve on one of the clerical or executive staff of the hospital. But this brings us up against another wall, generally designated by that comprehensive term "the office."

"The office" to many, and especially lay minds, means a man who, after a ten or twenty minutes wait, says to the visitor: "Well, what do you want?—Up two flights and turn to your right."

When the visitor's friend or relative is dead, this formula has the following valuable addition: "The doctors don't know what your brother died of, and they want an autopsy on him." This is generally promptly refused, and the incident is closed.

There are notable exceptions to such, to say the least, perfunctory methods, and perhaps the one most deserving of special mention is the system of the office and house staff of the Presbyterian Hospital of Manhattan. Here, the office, under the direction of the executive, himself a physician and in hearty accord with the desires of the professional staff, co-operates in a rational way, and with excellent results. When a patient dies in the Presbyterian Hospital, and an autopsy is desired, a blank form is filled in by the house physician or house surgeon, of which the following is an example:

THE PRESBYTERIAN HOSPITAL,
New York, Nov. 19, 1906.

TO C. IRVING FISHER, M.D., *Supt.*

Dr. Thompson, the attending physician, desires an autopsy upon William Yates, who died at 7.50 o'clock, P. M., on the 19th inst., in Ward XI. Diagnosis: Chronic cardiac valvular disease. Acute uræmia.

(Signed) LATHROPE,
House Physician.

The office sends the following message to the nearest relative:

"William Yates died last night. Come to hospital before sending undertaker."

When the relative responds to the summons, the information on the blank, filled in as cited, is given him, and the various incentives to consent, such as gratitude, the good that may accrue to others, and a host of representations, that occur to any intelligent mind, are urged. The result is that the Presbyterian Hospital obtains autopsies on over 35 per cent. of its dead.

The coroner's physician is a very important factor to be reckoned with in the matter of autopsies.

A reference to Virchow's little handbook on post-mortems will show how cases in Germany analogous to our "coroner's cases" are autopsied and recorded. The detail is most complete, and the time occupied ranges between the limits of one hour and a half and two hours and three quarters.

Here, it is not unusual for the coroner's physician to sit in the hospital office and assign the cause of death. It is by no means a rare incident to have him write, "Cause of death: Dilatation of stomach," if that organ balloons out through the median incision; and the instant of its ballooning is the instant of his exit.

These ways are common to all our boroughs, and, I presume, to all our large cities. Also, the coroner's physician can make, and, I believe, is required by law to make an investigation of every case dying within forty-eight hours after admission to the hospital.

As a matter of fact, he refuses to permit autopsies on many of them; and the annual reports of two of our largest Brooklyn hospitals give interesting testimony on this point. One hospital had last year 273 deaths; of these 62 died within forty-eight hours of admission, being ambulance cases,many of them moribund on admission. Beyond a doubt cases other than 62 were also coroner's cases, and yet, the report shows that only 60 autopsies were made that year. This hospital's percentage of dead autopsied was 22 per cent.

The record of the other Brooklyn hospital is as follows: Number of dead, 189; number of ambulance cases where death was inevitable, 75; number of dead autopsied, 34. Percentage of dead autopsied, 18 per cent.

My criticisms of coroner's physicians are based on observations and reports in and from both boroughs, and are purely impersonal. I believe that the fault is with the system, or lack of system, in the coroner's office. My relations in autopsy work have been with only one coroner's physician, and they have been not only pleasant, but such as to engender a wholesome respect for his attitude, though not in perfect harmony with it. For we are forced to recognize, however unwillingly, that the coroner's office, with its physician, is not organized and supported for the purpose of scientific research, but is, in its essence, solely for the detection of crime. This function, I believe, it properly fulfills.

Let us suppose, however, that we have conquered all these difficulties, surmounted all these obstacles, and we are about the autopsy table, ready to begin work.

The first question is: Who should do the autopsy? I have heard many of the attendings on services other than the pathological say that the visiting pathologist should officiate. When one has seen men of these other services weary and leave the autopsy room before the autopsy on their erstwhile patient was completed, because some unpracticed pathological interne was ineffectually wrestling with the contents of the abdomen, one cannot deny that there is some basis for such an opinion. But the interne, also, has some rights in the matter; and to anyone who has ever stood patiently holding a knife for some one else to wield, these rights must strongly appeal. I believe that the interests of all concerned would be best conserved if the pathologist should take the new interne in hand and demonstrate to him, on the first one or two autopsies, the manner in which he desires the post-mortem to be done, and if he should lend his presence, and, if necessary, his assistance, at all the subsequent autopsies during that interne's laboratory service.

It may be of interest, however, that in most, if not all, of the large Manhattan hospitals, the visiting pathologist performs the autopsy. As to the method and completeness of autopsy work there is room for wide divergence of opinion.

In Orth's laboratory, in addition to the organs included in almost any general autopsy, examination is made of the brain, pituatary body, thymus, and thyroid glands and suprarenal bodies. Other continental laboratories add the spinal cord to this list.

The New York Hospital, while not examining the cerebro-spinal system in routine work, does examine many structures that are wholly or in part neglected in most, if not all, of our hospital mortuaries. These structures include the thyroid, thymus, pancreas, trachea, and larynx, aorta, ureters, and suprarenal bodies. At the New York Post-Graduate Hospital, I understand they take cultures from the important organs of all subjects.

At the Presbyterian Hospital in New York they make microscopic sections from such organs. Minuteness of detail in special autopsy work is too vast a subject with which to deal in a paper of this scope. I have confined myself to the consideration of the usual procedures in routine work. I have suggested that pathologists are not likely to be at one on this point. But when we consider that the consent to an autopsy has been obtained at the expense of considerable effort on the part of the house staff, and, perhaps, of the office, and that the granting of it probably has entailed much mental anguish on the part of the relatives, the only balm for which is the hope that good to others may ensue, and the fact that at this cost, we have placed before us a treasure house of knowledge, and the "open sesame" in our hand, it is not for us to go but a few steps past the portals; but rather is it for us to explore the innermost recesses and lay enduring hold on all that opportunity has placed at our disposal.

The care of the body by the laboratory attendant, or orderly, is, or should be, an important consideration.

In Brooklyn, the laboratory orderly is an unknown quantity. Here one man, or more, helps about the laboratory at odd times when he can be spared from duty in the wards. He usually does his laboratory work with ill-will. Sometimes he is told by the office to spend an hour in the laboratory and then go back to his ward. The common result of the hour's activities is summed up in a row of cigarette stumps. His itinerant course leaves, in the laboratory, a trail of dirty pails, rusty instruments, and bodies half sewed up. Frequently the subject lies for several hours as left by the necroscopist at the completion of the autopsy, the orderly having been called to one of the wards, or to dinner. Often it is not until he receives word that the undertaker has arrived that he bethinks himself that he has a body to close.

A few of the many things that a man of ordinary intelligence, whose duty was solely in the laboratory, could do—and he would fill a long felt want in Brooklyn—are as follows: He could prepare the post-mortem subject promptly for the pathologist, and properly for the undertaker; for the latter, wiring the calvarium firmly in "head cases," and closing the rectum or vagina when intestine has been sectional or genital organs removed. Unless a hospital can do, at least, this much to restore conditions, the undertaker deserves the five or ten dollar fee that some of his brethren in Manhattan obtain. Instead, in Brooklyn, we sometimes charge them for ice. Also the laboratory orderly should see that supplies, such as aprons, towels and gowns were on hand. He could do all of the routine urine analysis except the microscopic examination. He could preserve and label all gross specimens. And I ask the members of this society if, at a conservative estimate, the time spent by the men of the pathological staff in doing a large part of this work is not of greater value to the hospital than is represented by the cost of the orderly. This is one respect in which Manhattan hospital laboratories are far ahead of those of our own borough. They have their own orderlies, and several of them, notably the Presbyterian and the New York Hospital laboratories, have their own clerical staff, including a stenographer.

Another, and perhaps the only other, important detail in which the larger Manhattan laboratories are many strides ahead of those of this borough, is in the fact that they pay their visiting pathologists, including assistants, a salary varying from several thousand to four or five hundred. Most of these laboratories have a visiting staff of from three to five men.

The laboratory quarters across the

river vary greatly in size and not entirely in proportion to the hospital.

One hospital of rather large size, and larger reputation, devotes at present only one large room to laboratory purposes, while other hospitals use three-story buildings for similar work.

The largest hospital laboratory in Brooklyn, not devoted to teaching purposes, while considerably smaller than the largest in Manhattan, seems to me to be almost equal to any across the river in its equipment. In having a room for photographic work it exceeds any that I have seen in Manhattan.

I say frankly and without prejudice, that in our city as a whole, the Presbyterian Hospital gives the hospital laboratory the highest place it holds in New York. And the reason for this is found in the general policy of the hospital as embodied in a recent annual report.

In bringing this paper to a close, I ask you to bear with me a few moments longer, while I quote from that report.

> "If our Hospital had no reason for existence beyond the relief of individual suffering, and the cure of individual disease, it would still play an important part in the philanthropic activities of the community. It is this part of its work to which public attention has been and is largely directed, and it is this part of its work which, in the minds of most people, constitute the chief reason for its existence. This is a very narrow view to take. Great as is its service to the community in this particular, it is only a small part of the service which it really renders.
>
> "It is as an educational institution, an institution through which alone doctors and nurses can be trained, and through which alone medical science can be advanced, that our Hospital, like others under equally enlightened management, has its chief claim upon the public. It is only by providing hospitals where the art of healing can be practically taught that doctors and nurses can be prepared for their ministrations of mercy, whether to the rich, who can afford to pay in money, or to the poor, whose only recompense is thankfulness; and it is only by providing such hospitals that medical and surgical science has made the marvelous advance which we have witnessed in our generation and which it is hoped only presages the progress still to come."

Dr. J. M. Van Cott said that he had long felt that the difficulty with pathological work in cities like New York and Brooklyn was to be found in the fact that up to within a relatively short time the general practitioner had not been educated to the necessity and advantage of laboratory work. He thought that the visiting staff officers in hospitals were directly responsible for the low percentage of autopsies, and inefficiency of pathological departments. They forgot or did not realize that to be a proficient pathologist required years of training in technical methods. The idea was a common one that the work of a pathologist simply consisted in receiving chunks of material, putting them under the microscope and reporting upon them. The pathologist, he said, had been neglected, and abused in point of status amongst physicians, and fees for work which is not only highly technical and special, but time-consuming and often exhausting. He warned both physicians and surgeons that if they saw no necessity for leucocyte counts, and widal reactions upon a proper fee basis, there would soon be no competent clinical pathologists, because young men, on the average, expect at least a reasonable recompense for their work, and cannot live wholly on air. In Rochester, Minn., the Mayo Brothers paid their pathologist $5,000 annually; the Massachusetts General, the Boston City, and most of the New York hospitals paid salaries to their pathologists. These men find it profitable to devote their entire time to pathological work, and are competent to do rapid diagnostic work from the operating table. Such work, he thought, was criminal, unless performed by a man who was provided with every facility for doing it, even including a good meal in his stomach. If our Brooklyn physicians expect to practice up-to-date medicine, they must recognize these facts, and be liberal with their brother pathologists, remembering that they are really consultants of a high-class, whose opinions are often mathematically exact, and a *sine qua non* to both doctor and patient.

MEDICAL SOCIETY OF THE COUNTY OF KINGS

REVIEW OF THE FRENCH PEDIATRIC LITERATURE FOR 1906.*

BY LEWIS C. AGER, M.D.,

BROOKLYN, NEW YORK.

Visiting Physician, Seaside Home for Children; Chief of Pediatric Clinic, Polhemus Mem. Clinic.

THE first fact to attract the attention of the reviewer of French pediatric literature is the relatively large amount of space given to the discussion of the various phases of syphilis and tuberculosis. The next most frequent topic is the feeding of infants, particularly those suffering from chronic malnutrition. This can be explained in one or two ways; either these conditions are much more frequent in France than in this country, or else the French are tiding along through the early months of life many infants that would be considered hopeless in this country. Certainly the latter supposition is true, whether the former is or not. It is almost pathetic to note the vast pains that are being taken to lower the French infant mortality. That Germaniaphobia is at the bottom of these efforts is evidenced by the cry that is used to spur them on, namely, "The excess of the German birth rate over the French exceeds the total population of Alsace-Lorraine every two years."

Another point on which the French literature differs from the American is in the voluminous reports of the various organizations of a public or semi-public character that have for their object the reduction of the infant mortality.

The three most important of these are:

The "Gouttes de Lait," "Drops of Milk."

The "Mutualites Maternal," "Maternal Benefit Society."

The "Consultations de Nourrissons," "Conference of Nurslings."

A third organization that has an effective influence in an indirect way is the "Congrès International d'Assainissement et de Salubrité de l'Habitation" (International Congress on the Purification and Salubrity of Habitation). Although this organization carries "international" in its title, it is at present a French society, and is conducted by members of the French Academy.

Many of the topics discussed before this congress have only an indirect bearing on the child. Nevertheless the improvement of the home means the improvement of the child—a fact that has not yet received any proper recognition in this country. At the last meeting various phases of the questions of water supply and sewage disposal were discussed. The care of the village pump came in under this head, and also the emptying of privy vaults. Another interesting subject was the teaching of housekeeping, and certain resolutions were passed favoring a more concerted effort in this direction. American medical organizations would do well to follow the example of the French in this respect. We are too prone to hold an interesting meeting upon some highly practical subject, and after a suggestive discussion pass on to something else. In France, committees are appointed, the public is notified, and something is done.

An elaborate report that had a direct bearing upon the health of the child was entitled "The Swiss School in Relation to the Question of Hygiene." This lengthy report concludes with certain recommendations, two of which are interesting to us. First: The recommendation of the substitution of oil urinals for those with running water. Second: Some lengthy suggestions regarding the construction of the school baths and their management. The closely related subject of school plumbing was dealt with in a report to the congress from two architects, which is printed in full in the "Annales de Medicine et Chirurgie Infantiles," covering twelve pages.

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*Read at the meeting of the Kings Co. Pediatric Section of December, 1906.

Of the first three organizations mentioned, the "Gouttes de Lait" is the most extensive, and attracts the most attention. It has been in existance about four years. Its work resembles that of the Straus Milk Stations in Manhattan, and the similar work done in Brooklyn by the Children's Aid Society. There are branches in most of the large cities, and it is of a semi-public character.

The "Mutualites Maternal" was started on a small scale in Paris in 1891 by MM. Poussineau and Brylinski, but its practical success has been so great that its work has been greatly extended. Its object is to insure maternal nursing by supplying nurses, or rather housekeepers, during the post-partum period. In this way the mother has time for proper recuperation, and is able at the expiration of the time to take better care of the infant.

From this organization has sprung the "International Congress of the Gouttes de Lait," the first session of which was held in Paris in 1905. The second meeting is to be held in Brussels, September 3d to 8th, 1907, under the patronage of the Prince and Princess Albert of Belgium, and under the presidency of Prof. Escherich of Vienna. The formal call has been issued, and all interested in the care of the child are invited to participate. The call states that "The Gouttes de Lait" have for an object the war against infant mortality, as follows:

1. They give advice to mothers.
2. They encourage maternal nursing.
3. They distribute milk when the breast fails or is insufficient.

At the first congress the following resolutions were adopted:

"Whereas there are always some women who cannot nurse their children;

Whereas these women belong most frequently to the needy classes;

The congress votes as follows:

1. That the public powers use every means possible to diminish the number of mothers unable to nurse at the breast.
2. That the Gouttes de Lait should be instituted in the greatest possible number, and that the public powers encourage and facilitate their development.
3. That the Gouttes de Lait, a work for hygienic prophylaxis for nurslings, be under medical direction.
4. That the public powers favor in every way the popularization of infantile hygiene.
5. That rigorous legislation be instituted in every country for the surveillance of milk intended for infant feeding."

The provisional programme is divided into three parts:

1. A general discussion as to the scope, methods and name of future congresses.
2. A section for the study of the laws, regulations and methods employed in various countries and cities for the protection of the milk supply, and the prevention of infant mortality.

This section is also to discuss the relation of this work to the prevention of tuberculosis.

3. A section for the discussion of the various questions of individual conditions—the best methods of modifying milk, the analysis of milk, the study of the digestion of the infant, etc.

The other society, the "Consultation de Nourrissons" (Conference of Nurslings), was organized in 1892. Its plan is to receive each week the children under its care, until they are two years old. Its objects are:

1. To examine and weigh the

children, and to give advice to the mothers in regard to their care.

2. To encourage breast feeding.

3. To distribute sterilized milk of a good quality in exactly the proper proportions to those mothers who cannot nurse the infants.

According to reports to the Academy, the good results are indisputable. In the city of Arques a "conference" was established in 1903. In the five preceding years, the infant mortality had been 190 per thousand. It has gradually come down to 101. At St-Pol-sur-Mer the change has been from 288 to 151 per thousand. In Varengeville, from 145 to 77 per thousand, and so on.

Apparently the gain is chiefly accomplished by the increase in breast feeding. Various observers report that from two to three times as many mothers are nursing their children as before the establishment of this organization. This is accomplished both by the influence on the mothers and by the interest of employers of women on a large scale, who are beginning to make provision for their employees to nurse their infants during working hours.

The Society also aids in the enforcement of the "Law of Roussel."

Since its beginning in 1892, this organization has spread through France, and even into Italy, until there are at present several hundred local societies.

The statistics published from time to time by those interested in these three lines of work show a very encouraging reduction in the infant mortality wherever the organizations have been active. A careful study of the whole system would well repay the health authorities of our large cities.

"La Loi Roussel"—A subject that from time to time occupies the attention of French pediatrists is the Loi Roussel—the law of Roussel, which is periodically attacked in the interest of a commercialism that it is difficult for us to understand.

Theophile Roussel was one of the many French physicians who have been elected deputies. To understand his work it is necessary to review briefly a little ancient history. Even before the Franco-Prussian war thoughtful men had begun to call attention to the frightful infant mortality in France. Not until after the war, however, was much practical thought given to the subject. Then at last public opinion was aroused and some drastic action was demanded. Various plans were proposed, but Dr. Roussel, after careful study, struck at the root of the matter by a simple edict. It is difficult for us to comprehend the fact, but the fundamental cause of this social disaster was commercial wet-nursing. In other words, the French peasant mother was so mercenary that she was willing to let her own child die of improper feeding in order to sell her breast milk to the rich. As a result of the energetic work of Roussel a law was passed forbidding any woman with a child under seven months of age to become a wet-nurse. Wherever this law was enforced there has always been a direct and unmistakable good effect upon the infant mortality. Its enforcement varies from time to time and in different localities, and there are periodic attemps to reduce the period of compulsory nursing or to juggle with the law in other ways, made by those who traffic in wet-nurses. For this reason the subject comes up from time to time in the periodicals.

Some time in the month of May, M. Dieulafoy produced an explosion in the Academy of Medicine, which has been rumbling off and on ever since. He declared that many people were operated upon for appendicitis when they were merely suffering from muco-membranous enterocolitis, and that such operators were not all that they should be. He further stated—and this is what excited the most opposition—that the two lesions were never associated. The debate has been rather acrimonious at times. Broca spoke of it briefly in his address before the British Society for the Study of the Diseases of Children, for the purpose of contradicting Dieulafoy.

Perhaps the most direct contradiction of Dieulafoy's claim was made by M. Guinon before the Société Médicale des Hôpitaux in July. He only referred to the matter as it relates to children but his address was most emphatic. To use his own words, he said: "although I accept as a general rule that acute appendicitis is relatively rare in the adult in the course of a true chronic muco-membranous enterocolitis, and even that with an incomplete examination an incompetent physician might confound a typhlocolitis with appendicitis. But that which astonishes me is that no pediatrist rose in the Academy to say that that which is true in the adult is not true in the child. One might even invert the proposition and say; in the child there is never an appendicitis without an enteritis. When the colitis is localized in the caecum there is almost always an appendicitis."

The writer then proceded to show from a large number of cases that in children appendicitis is almost invariably a sequence of a recurrent or chronic colitis. If we admit the truth of the French claim that constipation, particularly when the stools are accompanied with a considerable amount of mucus, is a symptom of colitis, M. Guinon's is not so far from the American teaching as might be supposed.

While discussing the etiology of appendicitis it is in order to refer to the claim of the well-known Frenchmen Roux and Josserand that "adenoiditis" is the cause of entero-colitis and that entero-colitis may be entirely cured by the removal of the adenoids. The logical reasoning from these two theses is that appendicitis is the result of adenoids and that to prevent appendicitis we should remove adenoids whenever there is any indication of their being inflamed.

Sea-water Injections.

In 1894-5, M. Quinton made enthusiastic reports upon the hypodermic injection of sea-water in the treatment of debility in children. Minute directions were given as to the depth from which it should be drawn, how it should be sterilized and how it should be rendered isotonic with the human blood. Since the original publication many other physicians have reported remarkable successes in the treatment of various chronic conditions, tuberculosis and athrepsia particularly. The great benefits claimed are in the increase in appetite and gain in weight. To quote from one writer: "Having had occasion during the month of last September to submit a great number of tubercular children to the treatment by the injections of sea-water * * * we are able to obtain almost constantly a gain in muscular force, a return or an increase in appetite, a diminution in the expectoration, an amelioration in the stethoscopic signs, and an increase in weight." The results are not good, however, in advanced cases.

More recently Jacques Carles has suggested that the same results might be obtained by administering the sea-water internally, a quarter or half a glass, half an hour before meals. After trying it he is convinced that the results are highly satisfactory. No specific cases are recited, but the articles are published in the Pediatric journals.

Tuberculosis.—For some years there has been in France a "Société d'Etudes Scientifiques sur la Tuberculosis." This body has taken up various branches of the subject in a most exhaustive way. It recently devoted several meetings to the question of tuberculin. It would be impossible to review at length the numerous papers presented during the year upon this subject. Two facts are almost universally accepted. First, that the use of tuberculin for diagnostic purposes is a very valuable procedure. Second, that as a curative agent, tuberculin has some value in selected cases. Of course, these views are supported with a varying degree of enthusiasm by the different writers. Maragliano is at present the most active advocate of tuberculin as a therapeutic agent. All are agreed that the dose must be from one-tenth to one mille grain, and that it should never be used in febrile cases.

Some of the more cautious observers have called attention to the fact that a reaction to a diagnostic dose does not necessarily have much significance, for the reason that almost all residents of large cities have been infected at some time or other, and that a lesion that was practically healed might give a reaction.

The use of sea-water injections in the treatment of tuberculosis has already been mentioned.

In other respects the treatment of tuberculosis is along the lines adopted by the medical profession in this country, largely hygienic and symptomatic.

Prophylaxis.—In the prophylaxis of tuberculosis the French have been more energetic than any other nation. A volume just issued in Paris by Drs. Dehau and Ledaux-Lebard, entitled, "The War Against Tuberculosis," gives an amazing picture of the work going on in that country. The book is worthy of a more extended review than can be given in this paper, but a few quotations will be in order.

"More than ever following the international Congress held in Paris in October, 1905, the question of tuberculosis is the order of the day; more than ever the necessity of an exterminating war against this disease dominates those spirits preoccupied with the future of our society." The authors then go on to say that various countries have attacked the problem in various ways, and that the success of each has depended less upon the methods adopted than upon the vigor with which they have been carried out. "In our country," they say, "the dominating idea since the beginning of the campaign against tuberculosis has been *the protection of the child;* above all to ameliorate his general condition and to render him better able to resist those sources of infection which menace him both in the school and at home. From these ideas have arisen the various organizations for the protection of the child; organizations for improving the homes, for improving the food, for the prevention of alcoholism—"in a word, to preserve him from all the great factors in the propogation of alco-tuberculosis." A partial list of these organizations will give an idea of the magnitude and variety of this work: "The Commission on Unsanitary Houses. Organizations for Cheap Homes. Organization for Homes for Mechanics. For co-operation in homes or in building for outdoor work. For campaign against alcoholism, all of which seek to give to the families the most in need, and at the same time the most exposed, good, sunny homes, and a little garden where each, after toil, can escape the saloon, the great purveyor of tuberculosis."

"In Paris, as in the provinces, there are being opened every day a greater and greater number of dispensaries and sanatoriums for the treatment of those already infected."

"A single sentence will show better than a long enumeration the work done in France by private charity. In thirteen years, 1890 to 1903, more than thirty millions has been provided for the foundation and support of anti-tubercular movements." Nevertheless, "we estimate at 150,000 the number dying each year from tuberculosis * * * and 600,000 as the number proved to be infected."

The authors estimate that there are in France about thirty sanatoria by the sea for infants, containing about 6,000 beds; about twenty other sanatoria with 1,000 beds for children, and also 170 vacation homes receiving each year about 22,000 children.

The doctors also give an extended classified list of the various places to which children, predisposed or infected may be sent.

Undoubtedly all these facts are well-known to the members of the Society for the Prevention of Tuberculosis in this Country, but if they were more generally known here, it would help the good cause of that organization.

Another side of this question was recently presented in a long communication to the Academy, by Dr. Rousseau-Saint-Phillipe, of Bordeaux, entitled "Tuberculaphobia and Some of its Effects Upon Infantile Medicine." Many of his comments are very sane and practical. He declares that such a fear of the tuberculous patient is being engendered in some quarters, that he is becoming a sanitary pariah. The shot-gun quarantine will be the result and the general public will fail to take note of the features of the anti-tubercular movement. He points out that it is the bacillus of Koch that we must make war upon, not the individual, who may be infected with it. According to the author the partially educated public is afflicted with tuberculophobia and the thoughtless physicians with tuberculomania.

Typhoid Fever.—Comparatively little is seen in the pediatric literature of France about typhoid. Josias reported to the Academy in March on the use of anti-typhoid serum in the Bretonneau Hospital. He claims good results, but the question is still open to discussion. Typhoid is as a rule, such a mild disease in children, that his deductions are far from conclusive. He has used the serum for four years with a mortality of 3.8 per cent. in 200 cases. Previous to the use of the serum the rate had been from ten to twelve per cent. The serum used was that of Chantemesse.

M. Brunon, of Rouen, reports favorably on the use of this serum in the pediatric service of the general hospital of that city. According to him the death rate previously was seventeen per cent.,—certainly high for children,—and it has been reduced to three per cent. by the use of the serum.

To quote from his report: "In the cases observed by us during a period of two years and a half, the serum of Chantemesse has modified the classic physiognomy of typhoid fever, has attenuated the malady as a whole, has diminished its duration and the risks of complications, and has considerably abated the death-rate."

In considering these reports it is important to note that there is a very general belief among French pediatrists that Typhoid is as serious a disease among adults, and many of them quote statistics to prove this contention. MM. Pater and Halbron closed a long article on typhoid in children with the following emphatic statement: "In closing may we be permitted to again insist upon the gravity of typhoid in children, upon the multitude of severe, if not fatal, complications which are common to it. We unite ourselves with the number of pediatrists who deny the false idea of its benign nature so often expressed,—an idea which in no way rests upon clinical study or upon the prognosis from actual epidemics."

THE NOMENCLATURE OF THE GASTRO-INTESTINAL DISORDERS OF INFANTS AND CHILDREN.

At a meeting of the Pediatric Section of the Medical Society of the County of Kings, held on November 28, 1906, Dr. Louis C. Ager, as Chairman, presented the report of a Committee appointed last spring, following a discussion of a paper on the above subject by Dr. E. H. Bartley. A lengthy and animated discussion of the report of the committee took place, as the result of which it was decided to adopt the classification proposed by Dr. Bartley, which was based upon the best usage of American and foreign Pediatrists.

While this classification is not satisfactory, it represents the best usage, is not complicated, and seems therefore the best that can be done for the present. It was the consensus of opinion that it is very desirable that some attempt should be made toward uniformity among the members, and the adoption of this *provisional classification* was a step in that direction. The nomenclature of these diseases has been involved in almost hopeless confusion, and this action of the Pediatrists of this city will, it is hoped, lead to some uniformity in the description of these disorders.

The provisional classification, as proposed by Dr. Bartley and adopted by the Section, follows:

GASTRIC DISEASES.

Functional: Acute and Chronic Indigestion, or Dyspepsia. Cyclic Vomiting. Reflex Vomiting.

Organic: Acute and Chronic Gastro-Enteritis: *Synonyms: Acute and Chronic Gastric Catarrh.* Gastric Ulcer. New Growths.

Mechanical: Pyloric Stenosis. Dilatation.

INTESTINAL DISORDERS.

Functional: Constipation. Colic. Acute and Chronic Intestinal Indigestion. *Synonyms: Acute Fermentative Diarrhea: Nervous Diarrhea.*

Organic: Acute and Chronic Enteritis: *Synonyms: Acute and Chronic Intestinal Catarrh.* Acute and Chronic Entero-Colitis: *Synonym: Entero-Colitis.* Appendicitis.

Mechanical, or Malformations: Intussusception: Meckel's Diverticulum: Dilatation of Colon: Imperforate Rectum and Anus: Prolapse of Rectum.

Foreign Bodies: Fecal Impaction: Intestinal Parasites.

TRANSACTIONS

OF THE

BROOKLYN GYNECOLOGICAL SOCIETY.

A. A. HUSSEY, M.D., *Editor.*

Stated Meeting, Dec. 7, 1906. The President, R. H. POMEROY, M.D., in the Chair.

DOUBLE TUBO-OVARIAN DISEASE.

DR. J. O. POLAK presented specimens of the uterus and tubes from two cases. The first specimen was removed from an actress, 26 years old, who had been a dancer and had been variously married. She had contracted a gonorrhea during one of her early marriages, which had set up a gonorrheal endometritis and a certain amount of peritonitis and had involved the tubes. For the last three years she had had repeated attacks of pelvic peritonitis, the last one occurring about three weeks ago, when she was seized with a very severe pain, metrorrhagia and intense abdominal soreness. The patient was brought into the hospital in collapse At first a diagnosis of ectopic pregnancy was made Her condition was bad; she was given morphine and a saline enema. The condition became so much better, the pulse stronger, and as the temperature rose to 102° he concluded there was an acute exacerbation of a pelvic condition rather than an ectopic.

On pelvic examination the uterus was found fixed, and the two tumors, which he exhibited, were found down behind the uterus, fixing the uterus. This case was hysterectomized. One interesting point was the position of the appendix, which was in front of and adherent to the rectum, as it passed along the sacrum. Because of rupture of one of the tubes in the withdrawal, drainage was provided for, and the patient made an uneventful recovery. There was one development that had not been explained satisfactorily in this case; there is an immense exudate about the site of where the appendix was taken off. She passes gas freely, has had bowel movements and is now twelve days past operation, and yet there is an exudate just about where the appendix should be, having no connection with the wound, which he was at a loss to explain.

The only point in this case, to his mind, was whether we are justified in doing what he did, and that is in leaving the cervix in these gonorrheal cases. He left the cervix, because, as a rule, it gives a better vault to the vagina, and it makes an easier operation, and yet he felt in every gonorrheal case that he did, that he was jeopardizing the woman to a certain extent in leaving the cervix.

The speaker stated that the second case was interesting in only one point, and that was that the woman went for eighteen years with this condition, and went through attacks about as follows: She is 39 years of age and has been a widow for 17 years. She had one child soon after she was married, and then had the characteristic one child sterility, which accompany so many of these cases of gonorrheal infection. For the past 18 years she has had repeated attacks of pelvic peritonitis, coming on with almost each menstrual period, so much so that she has been in bed from five to ten days with each menstrual period during these eighteen years.

The condition found in this case was an adherent retroflexion, with a tubo-ovarian mass on the left side down behind the uterus. There was not much disturbance with the other tube, although it is generally the rule in gonorrheal cases to see disease of both tubes. After he had removed the uterus, the cervix looked suspicious, and he took it out. A section showed beginning adenomatous change in the cervix.

SUPPERATIVE CHOLECYSTITIS.

Dr. A. M. Judd related the history of this case as follows: November 22 he was called to see a lady 48 years old, married, two children, youngest 19 years of age. She was a strong, healthy individual, and had never had typhoid fever, dysentery or any prolonged intestinal trouble, which we find in a great many cases preceding cholecystitis. She had been operated on for appendicitis three years ago by Dr. Rushmore. The patient was very stout with about three inches of fat over the abdominal wall. She was menstruating at the time that the speaker saw her, but her menstruation for the last year had been very irregular, and she thought she was passing through the menopause.

During the last two years she had had repeated attacks of pain in the upper abdomen. They have lasted from a few hours to two or three days, and were always relieved by her physician giving her a hypodermic injection of morphine. These attacks have never been accompanied by vomiting or any rise of temperature or jaundice, and after the acute pain has passed off, after having the hypodermic injection, she was able to get about and do her ordinary housework, but there was always tenderness remaining under the free border of the ribs on the right side in the region of the gall bladder. This would last from four to six weeks, gradually decreasing in severity. These attacks have occurred about every six months.

The attack in which Dr. Judd saw her commenced November 9th at 9 P. M. She was taken with a sudden pain in the region of the gall bladder, had a chill, rise of temperature to 105°, succeeded by profuse perspiration. A hypodermic of morphine gave relief. At five o'clock the next morning she was taken with another attack of pain and a chill, rise of temperature and perspiration. On the 11th she had another attack, very similar; on the 14th another. On the 22d, when the speaker saw her, she had a temperature of 99°. Two hours afterward she had another chill and rise of temperature to 103°. Because of the patient's being so stout he was unable to make out anything satisfactorily; the physical examination simply determined that there was tenderness in the region of the gall bladder. He could not feel any tumor except a mass of fat.

The next morning a leucocyte count was made; there were 19,000 leucocytes, with 81 per cent. polynuclears. One of the reasons why he reported this case was because the differential count seemed to be of help here. Two days later she entered the hospital, and another leucocyte count was made with 18,000 w. c. found. A differential was not made.

Ten days ago the speaker operated on the patient, using the Mayo-Robson incision. The gall bladder was very hard to find; in fact he encountered pus before he found the gall bladder. There was a suppurative inflammation around the gall bladder, which was adherent to the stomach and duodenum, but finally he succeeded in tying off the cystic duct and enucleated a very small gall bladder from below. Before he completely enucleated it, he broke through the wall of the gall bladder and succeeded in getting out one stone. He thought that with the forceps he crushed another, but was not absolutely sure. He put in a rubber drainage tube, and the patient is doing very nicely.

CALCAREOUS FIBROID TUMORS AND ENDOMETRIAL CARCINOMA.

Dr. L. G. Baldwin stated that he presented this specimen more for the variety of pathological conditions which it presents than anything else, and one in his experience not altogether common. It was a uterus with the appendages intact, a pan hysterectomy having been done.

The patient, 53 years old, multipara, menopause at 47, a year ago commenced to bleed. She let it go on for a year, when she consulted her family physician, who referred her to the speaker. Getting this history and making the examination, he was sure she had a fibroid, but from the previous and continuous bleeding he suspected she had an adeno-carcinoma of the endometrium as well. Yesterday he did a pan hysterectomy and so found. The interesting point was, that in almost complete juxtaposition to the adeno-carcinoma is a perfectly healthy fibroid—healthy spoken advisedly. On the other side is a calcerous fibroid, so thoroughly calcareous that he was foreed to cut through it with a saw. The calcerous degeneration was interesting from this standpoint, that it was all on the circumference, and if the specimen is examined carefully, one could see the calcareous material gradually working its way into the center of the fibroid. Then in the endometrium is a very extensive adeno-carcinoma.

The speaker believed that this was a good time to emphasize the fact that fibroids do not become carcinomatous. As this case showed the carcinoma was of the endometrium, and had nothing to do with the fibroid. On the left side there was a hydrosalpinx with a good many adhesions. The appendix was normal and not removed.

Dr. Baldwin stated that he took this occasion to say that he could not at all agree with the sentiments of our colleague in Philadelphia, who says degeneration of fibroids are of no account, that they never cause danger. The speaker believed that calcareous degeneration as in this case is apt to cause trouble. He did not see how it was possible for it to go on much longer without causing trouble itself.

VALUE OF DIFFERENTIAL LEUCOCYTE COUNT.

Dr. John O. Polak reported the following cases as examples of this:

Case I. Miss H., 46, schoolteacher, has been in poor health for severay years. Four or five weeks ago she began to vomit; this was followed by diarrhea fever and abdominal tenderness. On October 1st she was referred to my service at the Mary Hitchcock Hospital, Hanover.

The clinical diagnosis on admission was fibroid tumor of the uterus, infected cyst of the left ovary and complicating peritonitis. Her temperature was 103, ipulse 110. Blood count, leucocytes 12000 polynuclear morphocytes, 87 per cent. Such a count to my mind shows poor resistance and operation was deferred; differential counts were made twice daily. In six day the leucocytes had increased to 23000 and the polynuclear percentage had fallen to 63, which evidenced the success of nature's efforts of defence. On October 6th a supracervical hysterectomy was done. The left ovary consisted of a mere shell, measuring 9.8x 7.3 cm, enclosing a smaller and a larger abscess cavity, densely adherent to and continuous with a fibroid uterus. A cul de sac collection of pus was opened into while enucleating the mass, soiling the entire pelvic peritoneum. The pus was mopped up with sponges and the abdomen closed without drainage. The recovery was uneventful and afebrile after the first two days, the leucocytosis increasing during this period to 42000, showing that nature was prepared for the isolation process. I would have drained this case had I not known before operating that there was an increasing leucocytosis and a diminishing polynuclear percentage.

Case II. Mrs. F., 23, married, referred to the Mary Hitchcock Hospital October 4th, with the following history: Eighteen months ago the patient had an acute attack of pain in the right inguinal region, followed by vomiting and fever, lasting one week. A recurrent attack occurred eleven months ago. Her present illness began October 2, 1906, with severe pain in the right iliac region; nausea, but no vomiting; marked abdominal sensitiveness; temperature, 103.4; pulse, 128. Diagnosis, appendicitis. Leucocytes, 6000; polynuclear percentage, 87. Hourly counts were made from 10 A. M. to 4 P. M. The polynuclear percentage rose to 89, while the leucocytes remained at 6000-6100, showing the virulence of the infection. On operation the appendix was found pointing north, on the outer side of the colon; the organ was swollen, the walls soft and of a deep red color, and there was a perforation of 1.5x5 cm near the tip; there was a thin deposit of yellowish purulent exudate on the surface. There were no adhesions and the bowel was deeply injected. The appendix was ligated and amputated with the cautery. Gauze drainage. The recovery was uneventful, temperature and pulse dropping gradually, the leucocytosis steadly increasing to 29500 on the fourth day, as the polynuclear morphocytes diminshed to 70 per cent. The high polynuclear percentage indicated the severe toxemia and the need of immediate operation and drainage, as the leucocytosis was incompetent to isolate the infected area. This was shown at the operation by the absence of adhesions or exudate.

Case III. Mrs. B., married; no children. Menses always profuse and painful; lately has been troubled with a profuse metrarrhagia. Admitted to the hospital October 12, 1906, with a peritonitis of five days' standing. Temperature, 104; pulse 120; abdomen tender and rigid; nausea, vomiting and constipation. Diagnosis: Uterine fibro-myoma; right tube, ovarian abscess with peritonitis. Differential count on admission; leucocytes, 20000; polynuclears, 86 per cent.; treatment, rest; ice bags over abdomen; starvation, enemata and minute doses of morphia hypodermatically. Blood counts were made every eight hours for three days; these showed a gradual increase in the leucocytes until they reached 32000. The polynuclears dropped to 70 per cent., the clinical symptoms subsiding with the improvement in the blood conditions. Operation October 15, 1906. Supra cervical hysterectomy; peritoneal abscess under an incarcerated fibroid of the uterus and a right tube-ovarian abscess. The pelvic and parietal peritoneum was soiled with pus during the ablation. The pelvis was mopped dry with gauze and the abdomen closed without drainage. Her recovery was complicated by a temperature of 102.4 for the first two days, during which time the leucocytosis varied from 34000 to 36000, and the polynuclear percentage dropped from 78 to 70, as the temperature gradually declined.

These three cases show graphically the relation of the different count to clinical conditions and illustrate its value in determining upon drainage in pus cases. I hope in a future report to prove this contention.

Stated Meeting, January 4, 1907. The President, R. H. Pomeroy, M.D., in the Chair.

UTERINE FIBROID AND BROAD LIGAMENT CYSTS.

Dr. A. M. Judd, presenting the specimens in this case, summarized the history as follows:

Patient 51 years of age, widow, mother of six children. Menstruation began at 10 years of age, lasting five to six days, with profuse bleeding, but no pain. She married at 19, and her periods after marriage were every two to four weeks, with no intermenstrual bleeding. She had a slight leucorrhea. The menopause occurred six years ago. She has had to earn her own living since her husband's death, ten years ago. She was a sparse, rather poorly nourished woman.

The speaker stated that he made a physical examination before operation, and made out a small uterus well up against the symphysis, with a sausage shaped mass about four inches in length, and about three inches in diameter, posterior to the uterus. What he thought was the uterus proved, on opening the abdomen, to be a fibroid tumor attached to the anterior surface of the uterus; the mass behind was the uterus, between two ovarian cysts, spreading down into the broad ligaments. The patient is convalescing nicely.

EPITHELIOMA OF VULVA.

Dr. S. Matheson reported this case from the service of Dr. Polak, in the Williamsburgh Hospital. The patient was admitted October 28, 1906, and operated upon the following day. She was 60 years of age, and had had twelve confinements. Seven months previous to the time mentioned, a small nodule appeared in the left labia. Other nodules made their appearance, and itching commenced. Some months later the surfaces became irritated and painful, and when she came to the notice of the speaker the patch was quite large and bleeding, and there were enlarged glands in the inguinal region on the left side.

A free incision was made about the epitheliomatous mass; the upper portion was in contact with the entrance to the urethra, and the upper wall of the urethra had to be split about one quarter of an inch to free it. The epithelioma was removed, with the enlarged glands. Healing was by primary intention. The patient was discharged in 2½ weeks. The prognosis made was very unfavorable, on account of her age, and on account of glandular invasion.

Dr. V. L. Zimmermann said that some years ago he operated on a case of epithelioma of the vulva, using a cautery. The epithelioma was about the size of a lemon. He removed the growth with the cautery knife, and while doing so accidentally touched the labium on the opposite side with the cautery. Six months afterward the woman developed an epithelioma on the other side, at the site of the burn, with glandular involvement of that side, and died in three months.

ADENOMA CORPUS UTERI AND ADENO-CARCINOMA RIGHT OVARY.

Dr. J. O. Polak, in relating the history of this case, said that the patient was 45 years of age, the mother of five children; her youngest child was 13. Her menstrual history began at 14, regular, 28 day type, lasting four to five days, all through her marital life, until nine years ago, when the type changed, becoming menorrhagic. Later a metrorrhagia appeared, and she saw Dr. Munde. He advised curettage, making a diagnosis of a fibroid uterus. The curettage checked the hemorrhage for a few months. Then it recurred, and she was recurretted, and the bleeding ceased for nearly a year. At the end of that time she saw the late Dr. Pryor, and he advised hysterectomy, which was not consented to. She had gone on in this way for the past six years, until the present time, with more or less bleeding, gradually becoming exsanguinated.

She presented herself at the Jewish Hospital, December 31st, with the following conditions: A tumor of the uterus, the size of a fetal head; the cervix was open; the finger could be introduced into the cervical canal; the abdomen was extremely tense; there was also another mass on the right side which moved with uterus, and there was dullness in the flanks, showing free fluid. She was a very hysterical woman. Her red cells were 4,560,000; hemoglobin, 55 per cent. There were casts in the urine, but the quantity was sufficient.

Notwithstanding the continued hemorrhage, she had a good heart, and the vessels were apparently well filled, although a pronounced anemia existed, as far as appearances were concerned. He operated on her January 1st, Dr. Judd assisting. He found an adenoma of the body of the uterus, and an adeno-carcinoma of the right ovary. There was free fluid in the abdominal cavity, and many adhesions; he had considerable difficulty in enucleating it. The patient is making a good recovery, although the first few days were stormy, on account of her nephritis. The quantity of urine passed gradually increased to 33 ounces per diem. There is some blood and hyaline casts, as well as some free blood, in her urine at present.

The interesting point in the case, the speaker said, is how these adenomata will develope and be curetted, and be diagnosticated as either hemorrhagic endometritis or fibroids, and the patient go along until practically exsanguinated, because microscopic examinations are not made of scrapings.

Dr. A. M. Judd said that it seemed to him this tumor was pretty near the border line of a carcinoma, but, of course, the pathologist would be able to tell later. The adhesions were very extreme, although the operation did not take much over an hour.

It seemed to the speaker that this diagnosis should have been made very much earlier, considering the size of the ovary. It did not seem to him that an ovary could have developed from a normal ovary to the size of that ovary in two years. It demonstrated, Dr. Judd said, that our tactile sense is sometimes very deceiving, to the disadvantage of the patient.

Dr. L. G. Baldwin asked Dr. Polak if the diagnosis of Dr. Munde was not very accurately borne out by the specimen. He further asked if there was not a lot of fibroid tissue there. The adenoma or adenocarcinoma, whichever it proved to be, seemed to him to show very accurately within the uterus, but he could not conceive that the whole mass was an adenoma. If the changes in the specimen were due to the formalin, why did not the formalin change the inside as well as the interior of the uterus? The interior looked to him like fibroid tissue.

CÆSAREAN SECTION, FOLLOWING VENTRO-FIXATION OF UTERUS.

Dr. R. H. Pomeroy stated that he wanted to report very briefly a case requiring Cæsarean section, that came to his service at the Methodist Episcopal Hospital, December 31st. A woman in good health and condition, the mother of ten previous children, began labor December 30th; the membranes ruptured at two o'clock next morning. She was brought into the Methodist Episcopal Hospital the next morning, with a diagnosis by her attending physician of a breech presentation, which would not engage. This patient had had, some four or five years previously, an operation for procidentia by Dr. Pilcher, including the suture of the uterus to the abdominal wall. It was found on examination that the breech was presenting, with the posterior portion of the cervix well thinned and dilated, but the anterior portion of the cervix was thickened and undilated, and presenting a shelf back of the symphysis, practically equivalent to an extension of the symphysis, so that the antero-posterior diameter of the brim was reduced at least an inch. The patient at that time was having more or less tonic contraction of the uterus. She was put under morphine for her own comfort and left for some further hours' observation.

It was decided that the cervix could not dilate, and Cæsarean section was done by Dr. Humpstone, the speaker assisting. It was found that the uterus was firmly adherent by its lower third to the anterior abdominal wall by a band about the length and width of one's finger, a vertical band firmly adherent. The Cæsarean section was done mainly through the fundus of the uterus, and was carried through in classical form, except that the incision, being in the uterus, was somewhat more difficult to suture at its upper angle. The child was born in good condition, and the mother has made a satisfactory recovery, without any complications whatever.

Dr. J. O. Polak said that the case was interesting as illustrating the relation which ventro-fixation and suspension may bear to these labors. In this case it seemed that there was absolutely no question as to the indication for the operation, yet one would feel that suspension or fixation of the uterus was not an indication for Cæsarean section after a woman has born so many children. He was interested in hearing Boyd make the statement some months ago, that he had had five of these cases in the Lying-In Charity Department of Philadelphia, due to supposed suspension or deliberate fixation of the uterus, where we either have the entire development of the child in the posterior wall of the uterus, displacing the cervix, as in this case, or as in two cases of his own, where fixation had been done, the child came extremely low in the pelvis. One case he remembered in which the cervix and the vulva were on the same plane during the entire first stage of labor. The question in all these cases is, would one be justified in opening the abdomen and cutting the adhesions and let the uterus up. While that has been recommended, it is argued that Cæsarean section is not a greater danger than a laparotomy.

Dr. Pomeroy said that the question of cutting that ligament was considered, but this patient had been already a long time in labor, and the question of both the welfare of the child and of the mother had to be taken into consideration. Also with the consent and agreement of the mother the tubes and ovaries were removed in this case after completing the section and closing the uterus.

In answer to a question, Dr. Pomeroy said, that the vaginal Cæsarean section could have been employed, but that the abdominal route was much preferable.

Dr. R. L. Dickinson said that in a case of his own where this condition existed, he cut the retaining ligament, and the result was almost spectacular. It is the second case on record. He made a little incision, cutting the ligament between ligatures, and the fundus immediately proceeded to rise up in the abdomen. In four hours the woman was delivered spontaneously.

In the case reported by Dr. Pomeroy, the ligament could not have been readily cut; it was a long, solid adhesion with the omentum taking part in it. There was no possibility of getting this safely out of the way without damage. So the simplest thing was a Cæsarean.

Dr. A. M. Judd stated, that he wished to take issue with Dr. Polak on the question of cutting the suspensory ligament and his preference for a Cæsarean section. He lost a case of Cæsarean section last August, through an accident. The omentum was caught between one of his through and through sutures against the abdominal wall, and between the omentum and the abdominal wall a knuckle of gut became wedged. The obstruction did not occur in that knuckle of gut. He was unfortunate enough not to see the autopsy. The obstruction, they told him, was in the transverse colon, the omentum having been pulled upon so much as to cause a kink in the transverse colon.

Dr. R. L. Dickinson said that it was a simple thing to cut the ligament. The uterus rapidly replaces itself, and the labor is then a normal one. In multiparæ, with the membranes unruptured and the woman in good condition, he thought the cutting of the ligament is a justifiable and simple way out of the difficulty.

Dr. J. O. Polak said he did not feel that it should go out as the sentiment of this Society that section of that ligament should be tried in all of these cases. It is a possible solution in certain cases with certain well defined ligaments.

MEDICAL NEWS.

Edited by Clarence Reginald Hyde, A.M., M.D.

Members of the different County Societies of Long Island are requested to furnish news items and personals for this column not later than the eighteenth of each month. Kindly mail to the news editor, 126 Joralemon Street, Brooklyn Borough.

Illness of Dr. Church—Dr. Stewart Church, of 236 Clinton Street, who was suddenly taken ill in the street a few weeks ago, is convalescing rapidly at his home. He expects to resume his practice shortly.

Illness of Dr. Napier—Dr. Charles D. Napier, of 1273 Bedford Avenue, who was seriously ill with double pneumonia for six weeks, has resumed his work.

Dr. Butler Entertains the Kings County Medical Society—Dr. Glentworth R. Butler, President of the Kings County Society, entertained the members of the Society at a smoker held in the Library Building Monday evening, February 25th, from nine till twelve.

Dr. Alvah H. Doty Reappointed Health Officer of the Port of New York—Governor Hughes has reappointed Dr. Alvah H. Doty, Health Officer of the Port of New York, because of the latter's valuable services to the State for the past twelve years in which he has held this position. Governor Morton first appointed Dr. Doty in 1894, when he was Chief Inspector of the Division of Contagious Diseases in the Department of Health. By virtue of his office, Dr. Doty is an ex-officio member of the New York City Board of Health.

Centennary of the College of Physicians and Surgeons, Columbia University—The College of Physicians and Surgeons of Columbia University will celebrate its Centennial in June 1907. The Faculty has voted to make the occasion an elaborate affair. It has been decided to hold an alumni dinner, when it is expected that a large number of those who have graduated from the College since the formation of the Alumni Association fifty years ago will come from all parts of the United States to attend this function. Various academic exercises will also be on the programme. The first class was graduated in 1811.

Dinner in Honor of Dr. H. S. Newland, of Adelaide, Australia—Dr. J. Bion Bogart, of Clinton Avenue, gave a dinner at the Hamilton Club, Friday evening, February 16th, in honor of Dr. H. S. Newland, of Adelaide, Australia, who is connected with the anatomical department of the University of Adelaide. Dr. Newland, although only thirty-three years of age, is the youngest Fellow of the Royal College of Surgeons, England. After the dinner, Dr. Newland spoke of his observations of American surgery and surgeons. Dr. Algernon T. Bristow spoke on "The Surgical Achievements of the Past"; Dr. Wood on "Surgical Anticipations"; Dr. Lewis S. Pilcher on "The Hospital of the Future"; Dr. John O. Polak on "Medical Education of the Future"; Dr. James P. Warbasse on "The Medical Literature of the Future"; Dr. William F. Campbell on "The Medical Society of the Future". At the close of the informal post-prandial exercises, Dr. Newland, by request, gave a sketch of medical education in Australia, with especial reference to the Universities of Melbourne, Sidney and Adelaide. Among those present were Drs. J. Bion Bogart, H. S. Newland, Algernon T. Bristow, James P. Warbasse, Richard W. Westbrook, William E. Butler, Lewis S. Pilcher, Paul Pilcher, Arthur H. Bogart, William F. Campbell, John D. Rushmore, George McNaughton, Russell S. Fowler, Walter Wood, John O. Polak, Thomas B. Spence, William B. Brinsmade and William Linder.

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CAISSON DISEASE.

THE PATHOLOGICAL ANATOMY AND PATHOGENESIS.*

WITH AN EXPERIMENTAL STUDY

By HARLOW BROOKS, M.D.,

NEW YORK.

IT may appear somewhat like carrying coals to Newcastle to appear before a Brooklyn Society with the subject which I announce. Yet it seems especially appropriate to call your attention to Caisson disease on account of the large amount of this material with which you are meeting here in Brooklyn, and the great importance of the subject (notwithstanding its familiarity to some of you), may excuse my bringing the theme before you.

There is no doubt but that all of us are to see this disease more and more often, since work demanding the use of compressed air is becoming much more frequent, and, as long as men are as they are, careless under habitual danger, just so long will an increasing number of cases of Caisson disease appear, even though now if the rules ordinarily promulgated were generally observed, the condition might be almost entirely averted.

Historical.

It is interesting to note that the first observations on the effects of compressed air on the living human body were not accomplished for the furtherance of mechanical purposes but that Dr. H. Henshaw in 1664 proposed that compressed air be utilized in the treatment of disease. In 1783 the Academy of Sciences of Haarlem offered a prize for the best report on the effects of compressed air on animal and plant life. Nothing of much medical value appears, however, to have followed. Experiments and observations from the use of the diving bell, invented by Taisnier, who was born in 1509, brought but little of importance as to the effect of compressed air on the living body, because when these instruments first came into use, the amount of pressure in them was not sufficiently great to cause direct effects other than such as were clearly due to the impure and poisoned atmosphere, and when provisions for the relief of these conditions were devised, no inconvenience followed their use. It is interesting to note that attempts to recover portions of the Spanish Armada were made with the diving bell in 1665.

In 1820 Hamel made certain observations on the effects of compressed air in the diving bell, but in his experiments attention was chiefly directed to the immediate effects of the compressed air and no notes are recorded as to disease following decompression, whereas, under the present conditions, it has been shown that the symptoms and lesions of Caisson disease appear *only* on decompression. Some of the observations of Colladon conducted on the same piece of work as Dr. Hamel's experiments, but not published until 1826, speak of symptoms of colic and diarrhoea which may possibly have been due to slight attacks of Caisson disease. After 1836, when Junod published an exhaustive study of the effects of compressed air as a remedial measure, it became extensively employed, especially in Germany, for the treatment of all sorts of diseases. The pressure used in these institutes, rarely over 10 pounds above the atmospheric, was insufficient to produce the changes of Caisson disease. The beneficial results obtained by this treatment appear to be undoubted and, as you all know, they are still successfully employed to-day by some enthusiasts, but the galvanic, vibratory and X-ray treatment have, to a large degree, succeeded this method for the numerous conditions in which suggestion is the important factor.

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*Read before the Brooklyn Pathological Society, February, 1907.

The Caisson itself was invented by Trieger, a French engineer, in 1839, and while our only records of the effects on the workmen are recorded by Trieger himself, who was not a physician but an engineer, he has given us our first account of Caisson disease. It occurred in two workmen after seven hours exposure in the compressed air and did not attack them until half an hour after they had left the caisson. The symptoms mentioned are severe pains in the arms and knees.

After the invention of the caisson it became more frequently employed in engineering operations and in 1845 Pol and Watelle first recognized that the danger to the caisson workers is in the return from the compressed atmosphere to the normal pressure. The changes mentioned by these authors as being most prominent in the fatal cases are the congestion of the lungs and brain.

From this time on, it was fully recognized that the danger lay in the rapidity with which decompression was accomplished, and secondarily on the condition of the men and the time which they had been working in the air, and but remotely on the high pressure.

It is unnecessary for us to proceed further in the historical review of the study of Caisson disease, except that it is most gratifying to note that two of the most exhaustive papers, and at the same time, those which have perhaps contributed most to a proper control and prevention of the disease are by American authors, Dr. Jamminet of St. Louis, and Dr. A. H. Smith of New York. Dr. A. H. Smith was in charge of the medical work in the caissons of the first Brooklyn bridge and his monograph on the "Physiological, Pathological and Therapeutic Effects of Compressed Air," cannot be commended too highly. Every one who writes of or works with compressed air is indebted to this author, who, in addition to his careful and impartial scientific discussion of all aspects of the subject, also first proposed the treatment which is now universally recognized as practically curative in all cases, if sufficiently quickly employed. I refer to the use of the compressed air or "medical lock" now employed wherever compressed air is used for engineering purposes.

The large number of theories proposed and yet finding champions in explanation of the causation of this important condition bear testimony to the fact that the pathological anatomy and pathogenesis of this disease are not yet fully established, hence I beg to present certain studies which I believe throw some light on the origin and nature of this interesting condition.

My own experience in Caisson disease has been somewhat limited in amount of actual anatomical material, but I have had the disease under study for some years, and I am reporting to you to-night a considerable amount of experimental work, conducted mostly some six years ago, but now published for the first time. I have purposely delayed my report on this work until I had opportunity to personally study a greater amount of material, under the actual conditions under which the disease occurs. These opportunities have recently been furnished me through the great courtesy of Dr. M. McCort, of the Belmont tunnel company. Through his assistant, Mr. Turnbull, of shaft 4, I have been able to conduct a few experiments which I considered of a crucial nature and I have also been permitted to consult the records of some 330 cases of caisson workers affected with mild and severe types of the disease.

Pathological Anatomy.

The pathological anatomy of Caisson disease has been but rather recently correctly appreciated, because in the acute disease, as a rule, death does not take place until secondary changes have developed in the organs chiefly concerned in the disease, and of these, the brain and spinal cord are of such nature as present very early and complex secondary alterations. Hence the earliest changes have not been very generally observed except by those few physicians who have been able to secure early autopsies on acute cases.

Superficial Changes.—Changes in the skin and superficial portions of the body are sometimes among the most important and striking manifestations of the disease. As a rule, in the early stage of an attack the skin becomes pallid and bloodless. This is succeeded by transitory or permanent areas of congestion or hyperaemia and occasionally by petechial hemorrhages, both in the skin and mucous membranes. Emphysema of the more loose arrangements of the skin is occasionally observed, particularly where the exposure to the air has been prolonged, the pressure high and the decompression very rapid. Sometimes the degree of emphysema is sufficient to be distinctly palpable. It appears mostly in the skin of the extremities and especially about the knee joints, also over the thoracic and abdominal cavities. Dr. McCort has cited one case to me in which enormous transitory emphysema of the scrotum developed. Careful palpation of the skeletal muscles may also detect emphysema of these structures. It is quite common to find muscular hemorrhage, and both Smith and Jamminet have reported cases of superficial emphysema quite independent of Caisson disease itself or associated only with the most mild manifestations of it.

Vascular System.—The heart itself shows slight or no changes which are to be considered in any way characteristic. It has been found dilated, firmly contracted or may be seen in any other state quite independent of Caisson disease itself. The blood content varies greatly depending on the condition of the heart muscle, on the dilatation or contraction of the peripheral trunks and on the venous and capillary capacity. In a considerable number of acute cases the blood within the heart chambers may be found literally riddled with air bubbles so that it appears like blood-stained froth. This condition is more frequently seen in the blood vessels and is particularly obvious in those of the mesentery and omentum. Actual microscopic hemorrhages are occasionally seen, but as a rule the hemorrhages are petechial and only microscopic in size.

Respiratory Tract.—Congestion of the lungs has been reported as one of the most constant lesions (Francois, Janeway, Smith), but sometimes the pulmonary vessels are anemic (Jamminet Case 3), the condition depending largely of course, on the dilation or contraction of the heart and on the general vascular content. Parenchymatous pulmonary hemorrhages are frequent. Extravasations into the bronchial and tracheal mucosæ are especially apt to occur where inflammatory changes pre-existed in these membranes. Pulmonary embolism, as in my cases, may be found.

Liver and Spleen.—Hemorrhages are reported in these organs and on account of the large number and size of the blood vessels air bubbles are especially apt to be found in them.

Urinary Organs.—The kidneys often show minute hemorrhages and occasionally extravasations of considerable size may be seen, as reported by Jamminet. No other renal alterations are of frequent occurrence or bear a direct casual relationship to the disease, though secondary changes in these organs are naturally frequent in recurrent attacks.

Emphysema and gaseous distention of the bladder are common, particularly when the bladder is allowed to contain much urine under compression. In these cases, on voiding the urine, there may be an escape of gas with it. For this reason workers are directed to empty the bladder before entering the air.

Ear.—Rupture of the ear drums is frequently found both with and without hemorrhage from the ear. These lesions were among the very first studied and were extensively discussed by A. Magnus in 1865. This change, unlike most of the others in compressed air workers, is most likely to occur on compression rather than on decompression. It takes place when the eustachian tubes are not patent or when compression or decompression is very rapid. Also when the worker does not balance the air pressure within the internal ear with that outside, by the frequent swallowing of the air.

The changes in the nervous centers are beyond question the most important of all the lesions of Caisson disease. The were recognized as essential as early as 1861, and the most evident symptoms are such as arise from diseases of these organs. They vary greatly in intensity, that is in degree, but they are essentially of the same character throughout. Obviously they differ quite markedly in acute and in slow cases, chiefly on account of the early and pronounced secondary alterations which take place so uniformly in all diseases of the central nervous centers. In our consideration of the pathological anatomy of the changes, we must therefore make a careful distinction between those alterations which are seen in the acute cases and those in which death does not follow for some days or weeks after the onset of the disease.

The Brain.—Alterations in the brain are less frequently reported than in the spinal cord, probably not because they are less often present here but rather since a small area in the cerebrum or cerebellum more readily escapes post-mortem observation and because lesions of small size in the brain produce less symptoms than they would in the cord.

Hæmic and serous effusions into the membranes of the cerebrum are frequently recorded, and were found common, especially in Jamminet's series of cases. In the acute cases the most frequent change appears to be the presence of minute areas of laceration, softening and hemorrhage. The site of the hemorrhage is, unlike other forms of cerebral extravasation, very inconstant; it may occur into the ventricles, or, indeed, about any of the vessels, usually the smaller ones. It is highly probable that some of these hemorrhages are embolic in origin. These changes are associated with the presence of minute lacerations of the brain substance, first and best described by von Leyden in 1879. It is strongly probable that the bleeding results from these lacerations in a predominating number of instances. The changes seen in cases of subacute or chronic nature where the autopsy is obtained several days, weeks, or even months after the onset of the disease, are such as we might expect from the acute lesions mentioned, and the secondary alterations which must inevitably follow them. Thus areas of necrosis, patches of partly-absorbed hemorrhage, gliomatous and interstitial proliferation with fiber and cell degenerations, which must secondarily follow lesions of this nature, are seen as under any other like productive lesion of the brain.

Spinal Cord.—Here changes exactly similar to those detailed in the brain are found, but in nearly every instance one finds a more or less diffuse myelitis or softening which has involved the entire transverse section. In most cases we do not obtain the autopsy until several days or weeks after the primary onset of the disease, and obviously in such instances the tracts of the cord have become extensively diseased, those above the lesion by ascending degeneration, and those below by descending. As in the brain, these secondary changes must be distinctly separated from the primary alterations, which result directly from the action of the compressed air. The very inconstance of the spinal lesions described by the various authors is, in itself, proof that most of the minute changes are not primary and essential, but secondary, and in consequence of other changes of which I believe the lacerations and capillary ruptures to be most important.

The Peripheral Nerves. — The changes in the peripheral nerve trunks are entirely secondary and degenerative in type, consequent upon the spinal and cerebral changes. The pains of the acute disease, referred mostly to the distal portions of the body and especially to the muscles of the back and to the knee joints, are not due to alterations in the nerve trunks, but to the presence of air in the muscles, subcutaneous tissues and in the bone marrow and synovial membranes.

As illustrative of the anatomical changes in Caisson disease I wish to report a summary of the two following cases, which I secured through the courtesy of Dr. Schoonover, of Yonkers, then the House Surgeon of the Harlem Hospital.

Case I.—Admitted to the Harlem Hospital, July 27, 1902. Age twenty-six years. Occupation, laborer. No previous history of alcoholism. No history of venereal disease.

Family History.—Negative.

Previous History.—He has suffered from the usual diseases of childhood, but has otherwise always been healthy.

Present History.—For the week previous to admission he had been at work on "Bridge No. 3," East River, under a pressure of three atmospheres. Thirty minutes were required for the "go under," and the same length of time for the "come out." Patient had suffered no inconvenience from the compressed air up to the day of his admission to the hospital. On this day, soon after leaving work, he began to have severe, cramp-like pains in his legs, headache, tinnitus aurium, nausea and vomiting.

On admission to the hospital several hours later, there was complete loss of patellar reflex, partial motor and sensory paralysis, extending as high as the umbilicus. There was retention of the urine. Temperature, 99; pulse, 102; respiration, 24; urine, pale, amber colored, specific gravity, 1.020. Albumen present; sugar absent.

The paralysis soon spread gradually to the level of the fifth interspace. The temperature varied between 99 and 104 on the third day. On the evening of the fourth day the patient had a sudden collapse, the pulse became imperceptible, the respirations rapid and shallow. Ten minutes before death he had a severe convulsion while being catheterized.

Died July 30, 1902. Autopsy one and one-half hours post mortem.

Autopsy.—The body is that of a well-formed negro male. The amount of subcutaneous fat is small.

There is an area of vesication situated over the lower portion of the abdomen, caused by the local application of heat, otherwise the skin is normal. The nails are heavy and curved.

Rigor mortis is absent, and the body is still warm. On section muscular irritability is still found to be present. The peripheral blood is abundant, still fluid and dark in color.

Spinal Canal.—The membranes of the spinal column, particularly the posterior spinal vein, are moderately congested.

The spinal cord is large; there is about the usual amount of perispinal serum. Sections through the cervical portion of the cord show no apparent change, except that the amount of serum is unusually abundant, and becomes still more marked in the lower portion of the cervical region. The ventricle is normal in this portion of the cord, and the vessels are not congested. The tissue is firm and solid.

In the upper dorsal region the exudate becomes more marked, and has a semigelatinous appearance which becomes more evident as the lower levels are inspected. There is a small area of softening in the second dorsal segment, and this change is still more clearly seen in the third segment, and amounts to almost general softening in the fourth, fifth and sixth levels, while the change is so pronounced in the seventh and eighth segment as to give rise to macroscopic spindle-shaped swelling of the entire cord. In the eighth segment, which is very soft and mushy, a small H shaped hemorrhage is present, but above this point no hemorrhages were noted, and the vessels were but moderately filled with blood.

There is very extreme edema of the lower dorsal segments, but no other areas of softening are found except in the twelfth, where several minute points could be made out. In the lower lumbar and sacral regions, the edema is less and the structure of the cord is again firm and solid, no gross lesions being present in these regions.

Brain.—The skull cap is regular in shape, shallow in the frontal region, but otherwise well shaped. The bony tables are rather thicker than usual.

The Dura Mater is moderately congested, and the superior longtitudinal sinus contains a moderate amount of dark fluid blood.

The Pia-arachnoid shows very marked edema, and the fluid beneath the membrane contains many air bubbles, which are entangled in the meshes of the membrane. The edematous fluid is of a greater consistence than usual, and is almost syrupy. The exudate is slightly blood-tinged in a few places. The air bubbles are most frequent over the frontal region, and some are situated in the blood vessels.

The brain is well formed, large, and its markings are fairly symetrical. The tissue is edematous, the serum having here the same characteristics already mentioned. The ventricles contain a moderate amount of fluid. No air spaces are apparent in the brain tissue. The cortical layer of grey matter is thick and regular. The cerebellum, basal ganglia, pons and medulla are apparently normal, except for general edema.

Trunk.—The left plural cavity is free, the right one is entirely obliterated by dense old adhesions.

The pericardium is normal except for a few old areas of thickening.

The heart is large and the epicardium shows a few small thickenings, and there are a few small areas of sub-endothelial extravasation at the termination of the longer branches of the coronary arteries. The left ventricle is firmly contracted, the right ventricle is flacid, and contains a small amount of blood, mostly fluid. There is an abundance of air bubbles in the coronary veins. The heart muscle is thick, well colored and firm in consistence. The aortic segments are thickened, the opening into the coronaries show a funnel-shaped dilatation, and these vessels show moderate artheroma, but are of large calibre. The mitral segment shows a moderate functional thickening. The tricuspid valve shows relative incompetence. Weight of heart, 14 oz.

The tongue is large and normal, except for moderate enlargement of the postlingual and pharangeal adenoids. The œsophagus is normal.

The arch of the aorta and the large vessels of the neck are of smaller calibre than normal, and show a moderate degree of endarteritis, more marked in the larger trunks.

The thyroid gland is enlarged to about three times its normal volume.

Its tissue contains abundant colloid, and is apparently normal.

The trachea and larynx are normal.

The large bronchi show occasional tiny sub-mucous petechiæ, and their lumina contain an abnormally abundant secretion of mucus.

The lymph modes of the neck are enlarged, anthracotic and tubercular.

Lungs.—The smaller branches of the left pulmonary artery contain numerous small thrombi, the lung tissue on this side is collapsed. The thrombi are apparently of recent formation. The right lobes show a moderate emphysema, and the upper contains frequent generalized but quiescent tubercles.

The liver is normal in size; its tissue is moderately congested. It is firm in consistence. A few isolated healed tubercles are shown, otherwise the gland is normal. The gall-bladder contains about 10 cc. of clear mucoid bile; its duct is patent. Weight of liver, three and one-half pounds.

The spleen is normal in size. It is moderately congested, slightly fibrotic. Weight, 5 oz.

The stomach is small, empty, and its mucosa is in normal condition.

The intestine shows peristaltic movements when handled; its mucous membrane is normal. The ileum contains a small amount of normal appearing fecal material. The veriform appendix is long; there are a few strands of adhesion at its proximal extremity. The colon is apparently normal.

The mesenteric lymph nodes are somewhat enlarged, apparently fibrotic.

The pancreas is large, its tissue edematous.

The adrenal bodies are large, their cortices show moderate fattly degeneration.

The kidneys are enlarged, each about one and one-half volumes. They show extreme congestion and edema. The capsules are very adherent, and the markings are distinct and regular. The mucosa of the pelvis shows a few tiny hemorrhages. probably of thrombotic origin. United weight, 3 oz.

The bladder is greatly distended, and reaches up to the level of the umbilicus. It contains nearly a litre of clear urine.

The large vessels of the abdomen are of smaller calibre than usual, and their intima shows quite marked endarteritis.

The prostate gland and urethra are normal.

Cause of Death. — Pulmonary thrombosis, caused by softening of the spinal cord, due to caisson disease.

Summary of the Microscopic Examination.

The important lesions found microscopically were entirely limited to the central nervous organs.

The brain showed general dilatation of the lymph spaces, minute areas of edema, and minute lacerations, supposed to be air bubbles. The tissues of the cerebellum showed practically the same changes in degree and character, but the tissues of the pons showed, in addition, the presence of a few corpora amylacea and more numerous lacerations. The ganglion cell changes shown by the Neisl method are slight and unimportant.

The cerebro-spinal fluid, noted in the protocol as more than usually abundant and gelatinous, was found to contain a good many poly and mononuclear leucocytes, together with the fibrin.

Section of the unsoftened portions of the spinal cord showed the same changes as the brain, except that the lacerations here were much more numerous, and corpora amylacea were found about the peripheral portions in considerable numbers. Isolated degenerated fibres were demonstrable by the Marchi method. The ganglion cell changes in this portion of the cord were unimportant.

The softened areas present the changes usually found in transverse myelitis, and nothing characteristic otherwise. The ganglion cells and fibres here are, of course, universally degenerated.

Case II.—W. G. Admitted to Harlem Hospital May 23, 1899. Male, aged 35 years; married; nativity, Finland; occupation, "sand-hog" (caisson worker.)

Previous History.—Moderately alcoholic; uses tobacco in moderation. Had an attack of typhoid fever five years ago. Since this he has been in good health up to last summer, when he had an attack of Caisson disease, while working in the caisson of the East River Bridge. He had a light attack at this time and after he had received treatment was about his work again in a few days.

Present History.—May 23 he went into the caisson at 8 P. M. to work at a depth of from 78 to 80 feet below the water level under air pressure of 42 pounds. He came up at 11 P. M., having worked three hours. He felt all right when he started up, and on reaching the surface undressed himself and washed up. At 11.10 he began to complain of severe pains in the chest and abdomen, particularly in the precardial region. His legs began to tremble and he stated that he "walked as on a drunk." Then the lower extremities became powerless. On arrival of the ambulance, the surgeon found the patient unconscious. The pupils were moderately dilated, but reacted to light. The pulse was full, of low tension and rapid. The patient was covered with profuse perspiration. There was paraplegia and loss of sensation up to the level of the umbilicus. There was absence of the knee jerks and no ankle clonus, but if the sole of the foot were pricked, the extremity was drawn up very quickly. On the return of consciousness, one hour later, it was found that speech and hearing were normal.

Physical Examination—(One hour after admission). Pupils moderately dilated, and react to light. Paraplegia and loss of sensation up to the level of the umbilicus. Patella reflex absent, no ankle clonus. Stimulation of the sole of the foot by pin pricks caused the entire extremity to be quickly drawn up, but without the knowledge of the patient. Incontinence of urine. Temperature 99.2. Respiration 24. Pulse full, of low tension, 84. Later the pulse became rapid and intermittent.

Symptoms.—He complained of palpitation of the heart, extreme weakness and of pain in the abdomen and chest. There was no headache and no dizziness.

Bedside Notes.—Patient has incontinence of urine, constant priapism, was in good spirits and complained only of loss of power over his lower extremities. Five minutes before his death he was speaking to the orderly, asking for a drink of water. He suddenly became cyanosed, the heart action became irregular, rapid and feeble, he passed into an unconscious state, and before a member of the house staff could reach the ward, he died, 13 hours and 35 minutes after the onset of the symptoms.

Treatment.—The treatment used was necessarily very brief and unsatisfactory on account of the sudden termination. Ergot was prescribed to be given in dram doses, q. 4. h. and Magendie's solution was to be used as necessary to control pain. One enema was given with a poor result.

The body was placed in the cold vault at the Harlem morgue, and the post-mortem examination was made early in the evening of the next day.

Autopsy.

The body is that of a large and well-formed male. There is unusually good development of the skeletal muscles. Rigor mortis is general and marked, it is, however, somewhat relaxed in the muscles of the neck. The penis is erect and stiff.

The skin over the entire body is congested, this congestion is of a somewhat purpuric appearance in places, particularly over the pendant portions of the body.

The face is congested. The pupils are equal and about normally dilated.

The subcutaneous tissues and the muscles of the back show a very marked congestion of the vessels, particularly of the veins. There are quite numerous, but small blood ex-travasations into the muscles of the back, especially in those on the left side.

On opening the spinal canal it is found to contain large quantities of blood and serum. The blood has, however, apparently originated from the severed vessels of the back and is not ante-mortum in character, though the large veins of the spinal canal are generally congested. There is a noticeably large amount of serum in the dorsal region.

The dura mater is normal throughout and there has been no hemorrhage between the membranes, though there is a large amount of serous exudate in this location, and beneath the pia-arachnoid, especially in the dorsal region.

The cervical portion of the spinal cord appears normal on section. The dorsal portion of the cord is apparently somewhat softened and in the upper dorsal region there are a few small hemorrhages into the anterior horns. In the mid-dorsal region the ventricle contains a small amount of blood. There are tiny areas of hemorrhage or congestion in the posterior columns in various places. The lumbar levels of the cord are softened and show a few patches of congested vessels or hemorrhages.

Head—The vessels of the scalp are congested. The calvarium is circular in outline, its walls are thin and the arching is fairly deep, somewhat more so than on the left side.

The superior longitudinal sinus and the sinuses of the base are filled with dark fluid blood.

The dura mater is normal in every respect. The piaarachnoid is not thickened or adherent but it shows very marked edema with congestion of its vessels.

The brain is large, well-shaped and symmetrical. The convolutions are regular, large and symmetrical, and the sulci are deep. The vessels at the base are large and natural. The brain tissue firm, not congested, and the cortical layer of gray matter is thick and regular. The ventricles are somewhat over-distended with clear serous fluid. The choroid plexuses are not congested. The basal ganglia are normal, in so far as can be determined on gross examination.

The tissues of the cerebellum, pons, and medulla are normal.

The pituitary body is normal in size and appearance.

The subcutaneous tissues of the body are scant in fat, and the tissue is lightly colored. The musculature of the abdomen and thorax is unusually well developed, and the tissue is firm and deep red in color.

The epiglottis, larynx and the upper portions of the trachea are normal. The lower portions of the trachea and the large bronchi contain large quantities of frothy exudate.

The medium sized branches of the right pulmonary artery are filled with firm clot, evidently of somewhat recent formation. A similar condition, but of less extent, is present in the left lung. The apices of both lungs are emphysematous, and very edematous. The lower lobes and the posterior portions show very pronounced congestion, and in the most extensively embolized portions the tissue immediately adjacent to the arteries show very small blood extravasations.

Abdomen.—The liver is small, the left lobe is elongated. The capsule shows a few granulomatous thickenings on the superior surface. The tissue is firm, and is apparently normal. There is moderate congestion of the portal capillaries. The gall-bladder is large; it contains 15 cc. of dark golden bile. The bile duct is in normal condition.

The spleen is normal in size. There is a small supernumary splenic nodule 1 cm. in diameter situated near the hilus. The tissue is soft, moderately congested, and otherwise normal.

The pancreas is large. Its tissue shows several areas of hemorrhage, apparently originating from the smaller vessels or capillaries located in the stroma or the organ.

The omentum is short, fairly rich

in fat. The mesentery shows a cyst measuring 2 cm. in diameter, and filled with clear serous fluid. The mesenteric and retroperitoneal lymph nodes are neither enlarged nor congested.

The stomach is normal in size. Its mucosa shows moderate congestion, and is covered with a thick layer of mucus. The viscus contains a small quantity of partly digested solid food.

The small intestines show no abnormality.

The appendix is long; it is reflected upward toward the median line. It has a complete mesentery and is free from inflammatory manifestations.

The large intestine contains a few well-formed fecal masses. Its mucosa is in normal condition.

The adrenal bodies are large. They are apparently normal.

The kidneys are about the usual size. The capsules are neither thickened nor adherent. The markings are distinct and regular. The cortex is thick, and there are no evidences of parenchymatous alteration. The vessels are moderately congested. The pelves are slightly dilated.

Both ureters show evidences of recent dilatation; they are otherwise normal.

The bladder rises nearly to a level of the umbilicus; it contains about 700 cc. of clear normal-appearing urine. The mucosa is normal, except for the evidences of distention.

There is a slight enlargement of the prostate gland.

The posterior urethra and the seminal vesicles are in natural condition.

Cause of Death.—Pulmonary embolus, probably originating from dislodged blood clot or broken down tissue entering the veins from the diseased areas of the spinal cord or from the hemorrhage of the pancreas.

Summary of the Microscopic Examination.

The lesions pertaining to Caisson disease were found practically limited to the brain and spinal cord.

In the brain, universal and very pronounced dilation of the lymph spaces was present, there were many lacerations of the tissue, supposed to be due to air bubbles, and irregular patches of edema were occasionally seen. In some cases these lacerations appear to have extended out from the pericellular lymph spaces. Practically no alteration in the ganglion cells, demonstrable by the Neisl method, was evident. The blood vessels were generally contracted, and there were no degenerated fibers.

There were changes like those in the brain in the pons and medulla, and, in the latter, quite frequent, but very minute, hemorrhagic extravasations. The lacerations of air spaces were considerably larger here, and were mostly in the white matter. Corpora amylacea, some of considerable size, were in the medulla. Ganglion cell alterations in these portions of the centers were apparently unimportant.

All levels of the spinal cord presented the changes detailed above, but the air lacerations were much more numerous here, and of greater size. The most pronounced degenerative lesions of the cord were in the dorsal segments, where actual softening, with degeneration of ganglion cells and fibers, was demonstrable. Microscopic hemorrhages were numerous in these portions of the cord, and corpora amylacea very abundant. Sections of the anterior nerve roots showed, in these levels, a good many fibers with early stages of degeneration.

(*To be continued.*)

PRIMARY NON-TROPICAL ABSCESS OF THE LIVER

WITH REPORT OF A RECENT CASE.

By **WALTER A. SHERWOOD, M.D.,**
Attending Surgeon, Methodist Episcopal Hospital.
BROOKLYN-NEW YORK.

PRIMARY non-tropical abscess of the liver is a condition which in this part of the country is very rarely met with by the surgeon. It is true that quite frequently in the hospitals of our larger cities, even in this temperate zone, cases of hepatic abscess are encountered which owe their origin to a previous residence of the patient in the tropics and an infection there with the amœba coli, with subsequent dysentery, and finally the development of a liver abscess. But it is to be understood that these remarks are not intended in any way to include this form of abscess, but rather to deal with another and much rarer type of this disease. Nor is it the intention of the writer to present a detailed description of a subject with which he has had but little personal experience, the principal object of this paper being the recital of the history and course of a case of liver abscess which recently came under his care and incidentally to add a few general observations which have been gathered from the literature and particularly from the records of the few cases of hepatic abscess which have been observed in the surgical services of the Methodist Episcopal Hospital.

Definition.

By primary non-tropical abscess of the liver is meant the occurrence in the liver substance of one or more areas of necrosis and suppuration due to the entrance into the liver parenchyma of pus-producing micro-organisms other than those of the parasitic and protozoönic type. And it may be stated that this report is not intended to include those cases of liver infection which quite frequently occur as the result of direct extension from a neighboring suppurative process, such as a pyothorax, subphrenic abscess, suppurative processes in the region of the appendix and similar conditions, but only those cases in which the lesion in the liver is the primary discoverable suppurative process.

Etiology.

In classing this condition as a primary one, it must be admitted that such a classification is merely arbitrary, for except in very rare instances the infection is carried from some remote part of the body and is therefore metastatic, but the term primary is used in contradistinction to the class of cases mentioned, which occur as the result of extension and to the pyemias in which the liver abscess is only part of a multiple process. The only exceptions to this are the cases which develop as the result of traumatism and wound infection, in which instances the resistance of the liver cells is lowered to such a degree as to be a suitable field for the growth and multiplication of pus-producing bacteria, which according to many observers are regularly present in the liver substance. Such cases are to be regarded as intrinsic, and the best example of true primary liver abscess. In the other cases the infection may be the result of any local septic process in which there is no discoverable evidence of suppuration, such as an ulcer of the stomach or intestine, a small thrombus or embolus, or even such a simple condition as furunculosis, in which the primary focus of infection is insignificant. In the writer's case two etilogical factors were to be considered: there was a history of traumatism several weeks before the appearance of symptoms, the patient being pinned between the swinging boom of a sailboat and the deck rail, the boom striking him in the right lumbar region, forcing the right side of his abdomen and thorax against the deck rail. This history of traumatism was, in the opinion of the writer, the most probable explanation of the cause of the patient's subsequent illness. The second factor was the patient's statement that for the past two years he had been the subject of a series of recurring furuncles on his left forearm, evidence of which could be seen in the form of multiple cicatrices. These two etiological factors seemed to offer the only possible explanation of the source or cause of infection in the liver.

In such cases the infection is carried to the liver through the terminals of the hepatic artery, the portal vein, or more rarely the hepatic vein; in still rarer instances through the biliary ducts. According to most observers, entrance by way of the portal vein is by far the most frequent manner of invasion.

The micro-organisms which have been most commonly isolated and demonstrated in these cases of liver abscess are the streptococcus, staphylococcus pyogenes aureus and albus, bacillus coli communis and Fraenckel's pneumococcus. Males seem to be more frequently affected than females, the age of greatest liability being between 30 and 40. Alcoholism and other conditions which tend to lower the resistance of the liver cells, of course, render a patient more susceptible.

Varieties and Situation.

The abscess may be single or there may be two or more distinct abscess cavities; or radiating from the main cavity there may be one or more suppurating sinuses leading to pockets or smaller abscess cavities. The size of a liver abscess varies from that of very small dimensions to the size of an orange or even larger. The most frequent site is in the right lobe of the liver near the middle of its substance. The pus is usually thick in consistence, of a greenish yellow color, and is mixed with necrotic liver tissue and blood and bile elements. Microscopically pus cells, degenerated liver cells, blood cells and detritus are found. From the pus may be obtained in some cases a culture of the organism responsible for the development of the abscess. In the writer's case to be reported a pure culture of staphylococcus was obtained.

Course and Prognosis.

The disease may run an acute, subacute, or chronic course, depending on the virulence and number of bacteria which gain access to the organ, the vulnerability of the liver cells and the resisting power of the patient. The abscess may become encapsulated and undergo gradual absorption; it may rupture through the diaphragm into a bronchus and literally drown the patient in his own pus, or rarely it may rupture into an adherent coil of intestine and discharge its contents through the bowel. The most frequent termination in the cases which are not recognized as such and which are not operated on, is rupture of the abscess into the general cavity of the abdomen. This accident is always accompanied by shock, peritonitis and a rapid death. According to all who have contributed to the literature on this subject the prognosis in any event is almost invariably bad.

Frequency.

Out of 1,474 autopsies performed at the Royal Victoria and Montreal General Hospitals, only twenty-two cases of liver abscess were found. These figures included all varieties of abscess: those due to infection with amœba coli and abscesses due to the extension of infection from neighboring suppurative process. Only one was classed as intrinsic in its origin. In a search of the records of the Methodist Episcopal Hospital only five cases of hepatic abscess could be found among the 12,000 patients who have received operative treatment in that institution. It is doubtful how many, if any, of the first four of these cases were strictly primary or intrinsic in origin.

One other case was operated on in which the cause of the trouble was not found at operation, the hepatic abscess being discovered at autopsy. Since the occurrence of my own case another patient in the hospital died suddenly and at autopsy was found to be the subject of a ruptured liver abscess. In this case such a diagnosis had been considered but had not been sufficiently confirmed to warrant operative interference. Appended below is a brief résumé of the history and course of the cases found in the hospital records; these, of course, are lacking in many essential details which at this time would be of interest in the proper classification of the cases:

Case I. C. W. S., aged 43, U. S.; editor.—August 9, 1898, patient admitted to the hospital in the service of Dr. Pilcher in an almost moribund condition, with evidence of grave inflammatory lesion in the right upper quadrant of the abdomen. No history could be obtained. Patient was taken to the operating room and a four inch curved incision was made just below the free border of the ribs on the right side. The liver was seen to be much enlarged. An aspirating needle drew off a small quantity of thick yellowish pus from near the center of the right lobe of the liver. A hand introduced to a point near the posterior surface of the organ opened a large abscess cavity from which a large quantity of thick greenish yellow pus was evacuated. The patient sank rapidly and expired on the table.

Case II. J. G., aged 65, German; laborer.—Family and previous personal history negative. Six weeks previous to admission to the hospital patient was suddenly attacked with severe cramp like pain in the abdomen, most marked on the right side, but without any particular point of greatest intensity. The pain lasted several days and gradually subsided, leaving only a sensation of soreness. The patient vomited several times in the beginning of the attack and the bowels were constipated. For ten days previous to admission to the hospital he complained simply of a dull pain in the right side of the abdomen when moving about. February 10, 1899, on admission to the hospital, temperature, 99; pulse, 86; respiration, 18. *Physical Examination.*—Heart, negative; lungs, emphysematous; urine, negative, except for a few hyaline casts.

Abdomen.—Quite marked tenderness and slight muscular rigidity just below the free border of the ribs on the right side. Feb. 11th, operation by Dr. G. R. Fowler; 3-inch incision along the outer border of the right rectus muscle beginning an inch below the free border of the ribs. Peritoneum thickened and adherent to underlying structures. All tissues œdematous. After separating the adhesions an abscess cavity was opened which led upwards, backwards and to the left into the substance of the left lobe of the liver. This cavity was the size of a lemon and contained four or five ounces of thick yellowish pus and necrotic material. The cavity was washed out and packed with iodoform gauze which was led out at the middle of the wound. More gauze was introduced beneath this drain to protect the general peritoneal cavity and was brought out at the lower angle of the wound. The patient reacted well from the operation. The pain subsided and pulse and temperature conditions remained satisfactory. The gauze packing was removed at the end of forty-eight hours; drainage with a rubber tube was instituted and each day the cavity was irrigated with boro-salicylic solution. The amount of discharge lessened and there was apparently no retention. On the skin of the abdomen, however, was noted a vesicular eruption which seemed to be due to some irritating property of the discharge. All conditions remained satisfactory until the eighteenth day after operation, when there was a beginning gradual elevation of temperature and pulse rate. This continued until the twenty-second day when, without warning, the patient was suddenly seized with a general convulsion and died within a few minutes. No autopsy.

Case III. K. E., aged 53, female, United States; single.—Family and previous personal history negative. Admitted to the hospital, July 31, 1903, with the following history: Three weeks previous to admission began to have dull pain in the umbilical region. At the end of twenty-four hours the pain became quite severe and localized itself in the right upper quadrant of the abdomen. Patient had fever and slight chills. No vomiting. Pain lasted thirty-six hours and then disappeared. For the three or four days previous to entering hospital patient has had more or less pain, sometimes referred to lumbar region and at others to the region of the appendix. Has had three distinct chills and some fever. Bowels regular. No jaundice. The pain was never referred to the shoulder. Has lost flesh and strength rapidly and recently noticed a lump in the right side. Examination of heart and lungs negative. The urine contained a trace of albumen, hyaline and granular casts, and a few leucoyctes. It was otherwise negative.

Abdomen.—Entire right lumbar and hypochondriac regions occupied by a mass extending to the median line and above to within one inch of the free border of the ribs. The mass is quite tender and the skin in the axillary line is red and indurated. There is a notch between the free border of the ribs and the mass. On admission, temperature, 101; pulse, 140; respiration, 34. The patient was immediately prepared for the operating room. Operation by Dr. Pilcher: Four and one-half inch incision along the outer border of the right rectus muscle. The edge of liver was found to extend down to the level of the umbilicus. Mass felt posteriorly found to be an immense abscess running from the under surface of the liver almost down to the pelvis. The origin of this abscess could not be definitely made out, but the most probable origin seemed to be the right lobe of the liver near its posterior surface. The cavity was irrigated and drainage was established by means of rubber tubes which were led out of the wound and a counter opening made in the flank. The patient, although much depressed by the operation, made a satisfactory and uneventful, recovery, the amount of discharge steadily decreasing, and all evidence of inflammatory trouble having disappeared at the end of three weeks from the time of operation. She was discharged cured on the twenty-fourth day.

CASE IV. H. H., aged 55, male; German. —November 13, 1903, patient admitted to the hospital with the following history: Eight days previously was suddenly seized with pain in epigastrium, which extended along the free border of the ribs on the right side. No febrile symptoms. No vomiting. The acute symptoms abated in two days. For three days previous to entering hospital symptoms increased again, most of the pain, however, being in the region of the appendix. Temperature, 100.4; pulse, 100; respiration, 20. Examination of heart and lungs, negative; leucocyte count, 25,600. The whole right side of the abdomen was rigid and tender. Some tenderness along free border of the ribs. No mass palpable. Operation by Dr. Spence: Oblique appendicular incision two inches higher than usual. The appendix was inflamed slightly, and was removed, but found not to be the primary cause of symptoms. Higher up free pus was found in the region of the liver, and was found to originate from a good sized abscess cavity in the under surface of the right lobe of the liver. The pus and necrotic material was syringed away and drainage was established by means of a rubber tube and gauze packing. The abscess cavity was washed out daily, and the amount of discharge gradually decreased. One month after operation the wound was entirely healed and patient seemed perfectly well. Discharged cured.

WRITER'S CASE.

L. L., aged 31, Norwegian, married, fish dealer.—Family history negative; had diphtheria, whooping cough, and variola in childhood. No history of venereal trouble. Has never used alcohol. Came to this country from Norway nineteen years ago, since which time he has always enjoyed excellent health. Has never been further south than Virginia. Never had dysentery. For past two years has had series of furuncles on left forearm. In August last (three and one-half months before entering hospital) was pinned between the boom of a sail boat and deck rail, the force of the injury being in the right upper half of his abdomen and lower part of thorax.

Present Illness.—Started four weeks before entering the hospital with pain in the right lumbar region midway between the free border of the ribs and the iliac crest. Pain was quite sharp and stinging in character. Did not vomit, but was much distressed by accumulation of gas in the stomach. At the end of one week he was seen by a physician at which time his temperature was 103° F., and since then temperature has varied greatly. Has had profuse sweats. No chills. No appetite. Has lost flesh rapidly. On entering the hospital he complained only of slight pain in right side just below the free border of the ribs much less severe than in the beginning of his attack. Feels as if he were improving.

Physical Examination.—On admission to first surgical service of the Seney Hospital, patient had a sallow appearance, though not at all jaundiced. Looks feeble and prostrated. Breath foul. Heart and lungs negative. Urine contained a faint trace of albumen, epithelial cells, and a few leucocytes; otherwise negative. Sputum examination negative.

Abdomen.—Liver dulness extends two fingers breadths below free border of the ribs. Moderate muscular rigidity of the entire right upper quadrant of the abdomen. Slight tenderness just below the ribs and a little to the left of the gall bladder region. No œdema. Right flank and remainder of abdomen negative. Blood examination on the day following admission was as follows: Red cells, 4,100,000; leucocytes, 16,600; the differential count showing eighty per cent. of the polymorphonuclear variety. Plasmodium malariæ not found. Several examinations of the stools failed to reveal the presence of anything of diagnostic interest. No parasites, blood or mucus. Stools, brownish yellow in color and semi-fluid. During the nine days of the patient's stay in the hospital previous to operation the abdominal condition remained unchanged. There was, however, a gradual increase in the temperature curve. No pain. The leucocyte count increased to 25,000 with eighty-five per cent. polymorphonuclear in the differential. The patient rapidly lost flesh and seemed to be growing weaker. In view of the conditions, it seemed quite clear that operative interference was now indicated, and after obtaining consent of the patient, the usual preparations for operation were made. No positive diagnosis was attempted, but it seemed most probable to the writer that the condition was either subphrenic abscess, empyema of the gall bladder or abscess of the liver.

December 7th. *Operation* under nitrous oxide and ether anesthesia. Four inch incision through the right rectus muscle, near its outer border and beginning at the free border of the ribs. On opening the peritoneal cavity, the liver was seen to be much enlarged and the free edge of the right lobe was crowded toward the median line. Its surface was perhaps a trifle darker than normal, but otherwise seemed smooth and of the usual liver consistence. The gall bladder was normal. A hand introduced along the upper surface between the liver and the diaphragm failed to reveal anything abnormal. The viscera and peritoneum below and to the left of the liver were now protected with gauze pads and the hand was introduced along the under surface of the organ. There was immediately a gush of thick greenish yellow pus, which welled up through the wound. There was no odor to this pus. After sponging away all pus and necrotic tissue, the hand entered a large abscess cavity on the under surface of the right lobe of the liver near its centre. The main cavity was about the size of a small orange and was separated by a thin bridge of liver tissue from three other smaller pockets. There were all broken down with the finger; the cavity was washed out with normal saline solution and was then tightly packed with iodoform and plain sterile gauze, which was led out at the upper angle of the wound. A gauze handkerchief was also introduced below to protect as much as possible soiling of the general peritoneal cavity. The lower one-half of the wound was closed with crossed sutures of silkworm gut. Throughout the operation the hemorrhage was very slight.

The examination of pus from the abscess cavity was as follows: A culture revealed an almost pure growth of staphylococci. A smear showed pus cells, broken down liver cells, blood elements, detritus and staphylococci. There was but little post-operative depression, the patient making a good recovery from the anesthetic. At no time was there any evidence of general peritoneal disturbance, although for a few days he was considerably distressed by gas, which was relieved by the frequent use of enemata and the rectal tube. The temperature and pulse rate fell to the normal line and remained there until the right testicle became the seat of a suppurative process. This was opened and drained and at the present time shows no further evidence of inflammatory trouble. The gauze packing in the liver and the protecting handkerchief were not disturbed until the fourth day after operation, at which time they were removed. Their withdrawal was followed by an outflow of pus and necrotic material to the amount of several ounces. The cavity was washed out with saline solution and drainage was continued by means of a large curved glass tube, the end of which was introduced within the abscess cavity. The wound was subsequently dressed daily, the amount of discharge and retention from the cavity in the liver steadily diminishing. The entire wound became the seat of an infection, which resulted in a separation of the skin edges and muscular structures to such an extent as to allow a bulging of a knuckle of ascending colon. This was kept back and retained within the abdominal cavity by means of gauze pads strapped tightly over the wound. This infection subsided gradually and the wound has healed in a satisfactory manner, without the development of an hernia. Six weeks after operation there was evidence of incomplete drainage, as was shown by an increase in the temperature curve. A counter opening was accordingly made in the flank and through and through drainage was established by means of a rubber tube. At the time of the present writing the conditions are as follows: The patient is up and around, gaining rapidly in flesh and strength. His temperature and pulse rate are perfectly normal. The drainage opening in the flank has closed entirely. The abdominal wound is entirely healed except for a granulating area one and one-half inches long and one-half inch wide at the upper angle of which is a small sinus, which admits the passage of a probe for a distance of two and one-half inches. From this sinus there is a very slight discharge, which is steadily lessening under occasional injections of a five per cent. collargalum solution. On percussion the liver seems to be normal in size; there is no pain, tenderness or muscular rigidity. The last leucocyte count was 14,000 with seventy-five per cent. of the polymorphonuclear variety. In view of the present conditions it seems safe to the writer to report this case as cured.

The present report has been made because of the comparative rarity of the condition and because of the interest aroused from a diagnostic standpoint. Mention of diagnosis of hepatic abscess by means of an aspirating needle has purposely been omitted for the following reasons: In the first place, failure to find pus with the needle does not make certain the absence of an abscess; secondly, there is in my opinion considerable danger of carrying an already existing infection of the liver to another part of the organ, and again in the event of finding pus with a needle, nothing has been gained, for then the only proper course to pursue is to evacuate the abscess and establish drainage through a free incision. In a case similar to the one reported in which there is any suspicion of the existence of an abscess the writer believes that prompt opening of the abdomen for purposes of exploration is the one proper course to pursue, in this way, perhaps preventing a fatality which is otherwise almost certain.

LONG ISLAND MEDICAL JOURNAL

A Forum for the Discussion of all Topics Involving the Medical Profession and especially that of Long Island.

EDITED BY
PAUL MONROE PILCHER, A.M., M.D.

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Further information on advertising page 34

LONG ISLAND ASSOCIATION OF THE ALUMNI OF THE COLLEGE OF PHYSICIANS AND SURGEONS.

FEBRUARY 27, 1907, the Long Island Alumni Association of the College of Physicians and Surgeons held its annual meeting at the Hamilton Club in Brooklyn. The President, Dr. Dudley Roberts, presided. Over sixty members were present, which shows an increase in the attendance over last year. The organization of the Association is mostly for social intercourse, and although scientific addresses are made, they do not take the form of set papers but rather are informal talks in which the subjects are discussed freely by members of the Association. Any alumnus of the College of Physicians and Surgeons who resides on Long Island may become a member of the Association. There are no dues, the only expenses being those incident to the dinner.

At the last meeting, Dr. Samuel Lambert, of New York City, gave an exceedingly interesting address telling of the present arrangement of the curriculum of the College, emphasizing the need of more instruction for under-graduates, and detailed the plans to accomplish this.

The members of the Association were entertained by certain professional talent, as well as by Drs. Webster, De Forest, Warbasse and Ostrander. The following officers were elected for the ensuing year: Dr. William C. Woolsey, President; Dr. Victor Robertson, Secretary; Dr. Addoms, Treasurer; and Dr. Dudley Roberts, Trustee. After the meeting refreshments were served.

WILLIAMSBURGH MEDICAL SOCIETY.

JANUARY 9, 1907, the Williamsburgh Medical Society held its Stated Meeting in Brooklyn, with Dr. Leon Louria, the President, in the chair. In his inaugural address he tells us that the members of this Society rarely take part in the discussions of the other Societies, on account of the unfamiliar atmosphere which they find in the larger organizations.

It unfortunately has become the habit in some of our more important Societies to invite medical men from other cities to present most of the papers at their meetings, and as a result we are filled with admiration for the work of men outside of Brooklyn, and allow ourselves to be thrust into the background, when we should be seeking among our own members for the light which is hidden. Why should we continually invite outsiders to read papers to us? What is the result? We have an organization, as Dr. Louria put it, in which the atmosphere is unfamiliar to its members; in which the members do not have a chance to express their views. And even when a paper is discussed, the same men are always called upon and the younger men and the more reticent ones are not encouraged to speak. Our policy should be to educate the younger men among us to get up and express their views and not be forced continually to listen to the so-called masters.

It recently occurred that one of the younger members of the profession in this city had written a paper of distinct merit upon a subject in which he was specializing, and desiring to read the paper before one of his own Societies he made application to its president, but was refused a hearing because the programs for all the meetings were already completed, and, strange to say, the places were filled, almost without exception, by men who were not members of the Brooklyn Societies.

It is a wrong policy; we have men among us who are fully capable of instructing us and to whom we would do well to listen, and yet they are not given a hearing. It is the object, however, of the Williamsburgh Society—I believe partly on account of such occurrences—to have much of the personal element enter into its meetings. If the Society succeeds in getting men as active as Dr. Leon Louria to conduct its meetings, the project will be a distinct success; but it is nevertheless to be regretted that such Societies, entirely independent of our great central Association, should be necessary. The Transactions of the Williamsburgh Medical Society will be published from month to month in the Long Island Medical Journal.

ORDINANCE GOVERNING RIGHT OF WAY OF CERTAIN VEHICLES IN THE CITY OF NEW YORK.

An ordinance of importance to physicians was adopted November 8, 1906, relating to the rules of the road, and is as follows:

An Ordinance to amend Section 449 of the City Ordinances, adopted October 30, 1906, and approved November 8, 1906, relating to the Rules of the Road.

Be it Ordained by the Board of Aldermen of The City of New York as follows:

Section 1. Section 449 of the City Ordinances, adopted October 30, 1906, and approved November 8, 1906, is hereby amended so as to read as follows:

Sec. 449. Right of Way of Certain Vehicles—The officers and men of the Fire Department and Fire Patrol, with their fire apparatus of all kinds, when going to, or on duty at, or returning from a fire, and all ambulances, whether of public or private character, and all other vehicles when employed in carrying sick or injured persons to hospitals or other places for relief or treatment, and the officers and men and vehicles of the Police Department, and all physicians who have a police permit (as hereinafter provided), shall have the right of way in any street and through any procession, except over vehicles carrying the United States mail. The Police Department is hereby empowered to issue, upon application therefor, a permit for such right of way to any duly registered physician, which permit shall not be transferable.

Sec. 2. This ordinance shall take effect immediately.

CORRESPONDENCE.

A Correction Regarding Dr. Dawbarn's Operation.

To the Editor:

Sir—Even if I did not hold in personal friendship several of the members of the Brooklyn Surgical Society, which I am glad to say is the case, I am sure I could, nevertheless, depend upon the desire of every member for fair play; and in the report of the Society's proceedings, published in your number for February, appear remarks by two gentlemen upon what they are so courteous as to call "Dawbarn's operation" (excision of the external carotid and its branches, to starve malignant ineradicable growths), which do not properly represent that operation as published in my Gross Prize Essay.

In that study it was stated as strongly as possible that to do the operation upon one side only is completely useless. Through innumerable anastomoses between the two external carotids the blood crosses the face to the ligated side, and in a very few days at longest the circulation is as before.

Also, for two reasons, both given in detail in the book, the operation is advised to be performed upon the sound side first—and after a proper period for recovery, say ten days or a fortnight—upon the diseased side.

Dr. Figueira, in reporting his case of secondary hemorrhage and death a month after this operation at his hands, specified that he operated only on the diseased side; at least this operation alone was mentioned. And Dr. Lewis S. Pilcher, following him and saying that his personal instances of operating by this method had proved wholly without value, did not allude to the absence of a double operation by Dr. Figueira—which causes one naturally to wonder whether he, also, had been expecting miracles.

No one who has written upon this topic, so far as I have heretofore known, has failed to acknowledge that in most instances there has appeared (usually after the second operation, naturally), a prompt and remarkable diminuition of suffering, and also a rapid shrinkage of the growth. I am assuming, of course, that the case is one properly selected as to its situation; not one, for example, readily nourished from the *internal* carotid vessels, within the orbit.

As to these assertions regarding what is customarily to be expected, I can confidently refer to a prominent member of the Brooklyn Surgical Society, Dr. Bristow, who has more than any other member performed this operation, as it should be done—though almost wholly as yet upon cases of carcinoma.

This brings up the question of the permanency, or the reverse, of such benefits as are attained. I have never had, nor have I claimed a cure by it in a case of carcinoma. In that kind of advanced, ineradicable, malignant growth, the best we can offer the patient is a probable few months longer life than otherwise possible for him. However, for business or for other reasons patients are sometimes glad of even that respite.

Such few cases of permanent checking of the tumor's growth, and its remaining shrunken and inactive, as I have had, have been in sarcomata—several were detailed in my book; and if this operation has as yet had a fair test, in sarcomata, at the hands of the profession, they have not published their cases. It is such a test for which I still hope. The instances are very infrequent in which I am able to add such to my personal list; I have had a year go by without one—though this is not so as to carcinoma.

It will be plain upon a moment's consideration of the way in which malignant diseases spread, that this starvation method should theoretically, as it does practically, prove of more real value in sarcoma than in carcinoma; the former spreading along its blood vessels, which we control—the latter along its lymphatics, which we cannot control effectively, at least in the external carotid region.

In conclusion let me call attention to a fact which Roentgen-ray specialists have often noticed, and several have of late written about; namely, that in proportion as a tumor is very vascular, which most malignant growths are, these rays are less effectual. Last year Dr. La Place, of Philadelphia, told me that he had, the preceding summer, in Paris, seen this starvation operation performed a number of times, in ineradicable growths nourished by the external carotids, as a first step to effective treatment by the Roentgen-rays. The malignant tumor, starved almost to death, is then unable to oppose effective resistance, in its feebleness, to the curative power of the rays.

I would advise those surgeons wishing to try the plan, to paraffin-plug the two terminal branches of the external carotid or the occipital (according to situation of growth) but not both. This, after first tying off the other branches.

Of late I have simplified the work considerably, and apparently without detriment, by leaving the external carotid itself in place; and after the branch ligations, and the ligation of this carotid itself close to its beginning, to do its injection with the paraffin mixture as given in the essay, at a point close above its ligature—thus filling this carotid first, and then the chosen branches.

Respectfully,
Robt. H. M. Dawbarn, M.D.
105 W. 74th St., N. Y. City.

P. S.—In a letter received within the past few days Dr. Pilcher has most frankly admitted that he has never as yet performed the operation under discussion upon both sides of the same patient, and now realizes that therefore he has not done the operation justice, in writing and speaking of it. He authorized me to publish his letter if I saw fit. I take this occasion to thank him for this characteristically frank and generous statement. It was sent me, too, entirely upon his own initiative.

A CRITICISM OF THE NON-OPERATIVE TREATMENT OF APPENDICITIS.

To the Editor of the Long Island Medical Journal.

Sir:—The question of operation in appendicitis is of vital importance to the patient. In competent hands early operation is not likely to do harm, whereas operation too long delayed has often resulted in the death of the patient. There is no disease which is so treacherous; no disease in which symptoms apparently mild may yet mask a dangerous condition until rupture takes place, and appalling danger results which should have been averted. It is therefore with great regret that I have read in the March number of the Journal an article by my friend, Dr. Warbasse, which in my judgment is likely to do much harm by encouraging delusions which I had supposed well nigh extinct. Says Mumford, in his classical work on the "Surgical Aspects of Digestive Disorders": "All men now admit that appendicitis is a surgical disease. In reaching that conclusion we passed through fire." Now comes Dr. Warbasse with the statement that 75% of the cases of appendicitis "it is said" recover without operation, and the doctor adds that he is "convinced that the percentage is much larger"; how much larger he does not state. From this we must conclude that Mumford is wrong and that appendicitis is not a classical disease, except in rare instances. If that be true, then have we passed through the fire in vain? Our recollection of the countless cases of fatal peritonitis which we have been called to treat because the physician thought the case would "get well without operation" has been no more than a nightmare born of midnight rarebits and accompanying refreshments. Candidly, I cannot quite see how a man of the doctor's scientific attainments can willingly base so momentous a conclusion on such vague statements as: "it is said." There is nothing accurate in such a statement. Even if he were to quote a single observer, with tabulated cases and the percentage of recoveries from *primary attacks*, the statement would not even then justify such a broad and general assertion as that more than 75% of the cases of appendicitis recover without operation. We should not be surprised at this sort of talk if it came from Mother Eddy, but from the pen of a scientific man, as Mr. Delmas says: "We save the exception." The doctor's further statement is not more exact, since he says boldly that he "believes the percentage is much higher than this (75%)." The Femme Sage of Concord could not be more optimistic nor more inexact. Let us examine the doctor's classification of those cases which he is willing to admit require operation. There are fifteen classes in which he groups the operative cases. As he prudently says: "This is a large catalog of indications for operation." It is! It is! Then comes another statement as vague as before. "Most of the cases fall outside of this category." Would that they did! If the cemeteries could testify, they would not prove the alibi! Let us, however, examine the classification, and see whether in some of the classes earlier interference would not have been attended with less risk to the patient, with a shorter convalescence, to put matters mildly. CLASS I: *"Appendicular Abscess."* Such a condition can only happen when the attendant has been deluded into the doctor's views that more than 75% of the cases recover without operation. CLASS II: *"Appendicitis giving rise to a distinct tumor with evidences of suppuration and cellulitis."* The same comment applies to this class. They are neglected cases. CLASS V: *"Gangrenous* and *perforative appendicitis."* The doctor remarks that these are frequently sequelæ of a "fulminating type." I reply that a fulminating appendicitis, so-called, is also frequently one in which the preliminary symptoms have been so slight as to fool the attendant into a false sense of security. Both forms, gangrenous and perforating, may happen where the temperature has never risen above 99°. I have seen many such cases. CLASS VII: *"Appendicitis which has extended its infection to surrounding structures."* Simply another way of stating that the gravity of the case has been overlooked, and the patient encouraged to believe that the *"large percentage of cases recover* without operation." CLASS VIII: *"Cases of diffuse peritonitis."* These patients clearly did not belong among the ninety-and-nine that are to be saved without surgery. Early operation and less Christian Science would have spared them the perils of a diffuse peritonitis. CLASS XI: *"Cases with evidence of metastatic infection."* Again, not among the ninety-and-nine. More than half the classes which in the doctor's opinion require operation, are every one of them bad cases with serious complications, and they are such because of a blind belief that a *"much greater percentage than 75% of cases of appendicitis recover without operation."* A more dangerous and mischievous delusion was never promulgated; witness the graves of these hundreds of victims whose disease would fall in the classification cited. The doctor is willing to make himself responsible for a good deal when he is willing to maintain such a statement and defend it in a medical journal. "They sometimes return to me, or some one else operates on them." True, but they do not always return to their families after operation, but perish, *hapless victims of a fatuous belief in a fallacy.*

Respectfully,
ALGERNON T. BRISTOW.

A DEFENSE OF THE NON-OPERATIVE TREATMENT OF APPENDICITIS.

To the Editor of the LONG ISLAND MEDICAL JOURNAL.

Sir:—At a recent meeting of the Brooklyn Surgical Society, December 6, 1906, I entered into a discussion of a paper by my friend, Dr. Thomas B. Spence, entitled, "Why Delay Operation for Appendicitis?" In response to your request I put my remarks, based upon the stenographer's notes, in the form of a paper headed, "Cases of Appendicitis which do not Demand Operation."—LONG ISLAND MEDICAL JOURNAL, March, 1907. This short discussion contained no reference to the literature and cited no authorities. It was prompted largely by the thought that most of the literature of appendicitis is from the pens of the surgeons, while most of the cases of appendicitis are being treated by the physicians.

Now, comes my friend Dr. Bristow, challenging my accuracy and imputing to my words an element of danger. It is a pleasure, of course, to substantiate my statements, but I regret the necessity for the discussion, because I concede that there is a danger inherent in it, and no one but Dr. Bristow is responsible for the references to the innocuous features of appendicitis which I am constrained to make. Success in combating this disease has come through sounding the alarm and emphasizing the direful results which may follow in its wake. We have fought for this ground and attained it, and it is to he regretted that the necessity has arisen to emphasize by substantiation the simple statement that "more than 75 per cent. of the cases of appendicitis recover without operation."

It is fallacious, if not unfair, for my friend, Dr. Bristow, to make me seem to contradict Dr. Mumford that appendicitis is a surgical disease. I believe that every case of appendicitis should be under surgical observation. The fact that the majority of cases do not come under surgical observation is not my fault. It is simply a condition which I should gladly see remedied.

Let us see if I have any ground for the statement that more than 75 per cent. of the cases recover without operation. Let us see if it is a "fatuous belief in a fallacy," as Dr. Bristow claims it is. Let us see if there is any authority outside of my own experience for such a statement. Let us see who is guilty of making unsubstantiated statements, Dr. Bristow or I. We may go first to the observers who have put themselves on record, and, as a result of a cursory consultation of the literature, we come upon no end of corroboration, which is a matter of common knowledge.

SCHLESINGER, extraordinary professor of medicine in the University of Vienna, a man of vast experience, and who is notoriously in sympathy with the surgical treatment of internal diseases, says ("Indications for Operation in Diseases of the Internal Organs," 1906, page 264): "Nothnagel and other writers advise against operation after a single attack of appendicitis, if the patient remains free from pain and other subjective symptoms and no abnormality can be discovered on abdominal examination. With this view I agree, for in about 75 per cent. of all cases recovery after a single attack is *permanent*."

NOTHNAGEL, one of the most scientific observers of internal diseases in the world, says ("Diseases of the Intestines and Peritoneum," 1904): 80 per cent. of cases of appendicitis recover under medical treatment, "and a considerable number of the remaining cases are curable by operative interference." He says also, when the cases are carefully watched and surgical intervention is invoked at the right time, the mortality can be reduced to 3 or 5 per cent. He reports 130 consecutive hospital cases in his service with 85 recoveries, 4 deaths without operation, 30 improvements, and 11 referred to the surgical clinic.

EWALD, the greatest authority on diseases of the alimentary canal ("Twentieth Century Practice"), puts himself on record with the statement that at least 90 per cent. of all cases recover under medical treatment alone.

HEMMETER, an American authority on diseases of the alimentary canal (in his work on "Diseases of the Intestines," 1902), reports a series of 32 cases with medical treatment in private practice without a death. Two relapses occurred within five years, but were recovered from without operation.

VIERORDT, professor of medicine in the University of Heidelberg and author of the "Diagnostik," says (Modern Clinical Medicine, Diseases of the Digestive System," 1906, page 656): "Without recourse to surgery, from 70 to 80 per cent. of all cases of appendicitis entirely recover. The relegation of all forms of the disease to the knife of the surgeon will, I am firmly convinced, never be possible."

Let us not stop at these authorities, but continue in the interest of corroboration to present Dr. Bristow with further testimony. The following are a few references from Nothnagel's "Diseases of the Intestine and Peritoneum," 1904;

FURBINGER reports 120 cases, with recovery in 78 per cent., improvement in 14 per cent., and death in 10 per cent.

RENVERS reports 91 per cent. of recoveries in all cases.

GUTTMANN reports 96 per cent. of recoveries.

CURSCHMANN reports 453 cases

with 4.5 per cent. mortality, and 9 cases referred to the surgeon.

Sahli has collected the statistics of 7,213 cases. Of these, 473 were operated upon, and 6,740 were not. Of the latter, 591 (8.8 per cent.) died, and 6,149 (91 per cent.) recovered. Recurrences occurred in 4,593 cases, and of these 3,635 recovered without a second recurrence.

Rotter reports 213 cases. 19 died (8.9 per cent.). Of the 213 cases, 21 had diffuse peritonitis, and were operated upon, with 7 recoveries and 14 deaths. 192 (the remainder) had circumscribed appendicitis. Of these, 156 recovered (82 per cent.) under medical treatment. Of the remaining 36 cases, 33 were operated upon, of which 3 died, and 3 died without surgical intervention.

The following further testimony may be of interest:

Hagen (*Deutsche Archiv. für Medicin,* March, 1907) adopts internal treatment from the beginning and expects to see his cases recover.

W. S. Allee (*Journal of the Missouri Medical Association*, November, 1906, page 302) says: "The surgeons' opinions as to results in medical treatment are formed largely from what they see in the most unfortunate class of cases, which constitute from 5 to 10 per cent. of the whole number of cases treated by the physicians, the 90 per cent. who recover without complications having had no occasion to consult the surgeon."

Boas ("Diseases of the Intestines," 1901, page 465) says: "If, after an acute attack of appendicitis, severe and other disturbances (pain, sensitiveness, etc.) persist, operation is to be performed as soon as possible in those whose vocation necessitates work. In other cases, operation is indicated only after other remedies have failed."

Forscheimer ("The Prophylaxis and Treatment of Internal Diseases, 1906, page 295) says: "I have no hesitancy in saying that, with proper medical treatment, the mortality in private practice is less than 5 per cent." He further says: "We must individualize; if a patient has had a mild attack without sequelæ, it is proper to wait for a second attack; if this one is mild, operation can again be deferred."

Reed ("Diseases of the Stomach and Intestines," 1907), after citing surgical and medical authorities, says: "Under appropriate medical treatment alone, catarrhal appendicitis nearly always gets well—or at least the attacks are recovered from. It is probable that few of them would relapse if the best possible treatment were strictly followed afterwards. Woods Hutchinson quotes Christian Fenger, one of the most brilliant surgeons this country has produced, as stating that about one-third of the severer types of cases recovering from one attack would probably never have another." On page 752 he says: "It is a fair inference, therefore, that perfect rest and the starvation plan will rescue a larger proportion of the more dangerous forms of the acute cases than operation, by even the very best abdominal surgeons." "The belief that almost any sort of surgery is safer in acute appendicitis than the very best posible non-operative treatment is no longer defensible." On page 754 he says that he sent to nine surgeons and one medical man the following question: "What mode of treatment do you advise during the first two days of a mild or moderately severe attack of appendicitis?" Morris, Murphy and Ochsner replied, operation. Ochsner, while advocating operation if a good surgeon could be obtained, opposed operation in case of perforation or gangrene. Wyeth, Park, Willard, Martin, Richardson, Turck, and Stockton advocated non-operative treatment.

A discussion of this subject before the British Medical Association showed that there was a decided tendency to limit the number of cases to which operation was applicable. (*British Medical Journal,* Oct. 24, 1903.)

W. Russell (*Lancet*, March 19, 1904) advises against immediate operation.

Caird, of Edinburgh (*Canadian*

Lancet, XXXIX, 1906, page 778), says: "I generally apply an ice-bag, wash out the rectum, and wait a day or two. If, when under observation, the patient does not improve, or, if, after a temporary lull, symptoms again—within ten days—become exacerbated, operation is indicated."

TERRY (*Providence Medical Journal,* VII, 1906, page 197) says that the majority of cases recover without operation.

WAKEFIELD (*Monthly Cyclo. of the Prac. of Med.,* XIX, 1906, page 24) says that he never lost a case or had a case operated upon.

BROWNSON (*Medical Record,* Oct. 6, 1906, page 535) says: Operate in the primary period, in the abscess period, and in the interval period. Do not operate in the period of high fever, distension, etc.

CHAUVAL (*Month. Cyclo. Prac. Med.,* June, 1906) reports 668 cases of appendicitis in the French army treated medically and surgically. 188 were operated upon; 23 died. 480 were treated medically; 3 died. Total mortality for all cases less than 4 per cent.

TUBBY, surgeon to Westminster Hospital, employs tentative measures. (*Can. Lancet,* XXXIX, 1906, page 775.)

LOCKWOOD, of St. Bartholomew's Hospital, employs medical treatment. (*Ibid.* page 776.) Also the following: *Battle* and *Corner,* surgeons to St. Thomas Hospital (*Ibid*); RUSSELL of the Royal Infirmary, Edinburgh (*Ibid*); KELLY and HURDON (*Canad. Lancet,* XXXIX, 1906, page 777).

CARVETH, physician to the Toronto Western Hospital, says (*Canad. Lancet,* XXXIX, 1906, page 775): "90 to 95 per cent. of acute attacks recover under medical treatment for the time being."

By no means do I endorse all of the above views. They are cited merely in support of my statement. If Dr. Bristow desires further corroboration it can easily be supplied. I am surprised that a man of his learning should have fallen into so great an error. I repeat that the great majority of appendicitis cases recover without operation; the majority of cases never come under the surgeon's care; indeed, there is a considerable percentage never seen by physician or surgeon. I can recall the cases of patients who have told me that they have had a similar attack or attacks and did not consult a doctor. I, myself, when a student, had three distinct attacks of appendicitis within a period of three years, not knowing at that time the nature of the disease, and had no medical attention.

If we should have a discussion upon this subject before the County Medical Society, the general practitioners could report vastly more cases than the surgeons; and I have no doubt that their figures would still further corroborate the above citations. The cases which Dr. Bristow and I see represent the horrible examples of appendicitis, but they are no criterion by which to judge the whole disease. Appendicitis is like a game of football: there is a certain amount of hazard; a surgeon should always be present; but "at least 75 per cent." of the participants will get off without requiring his administrations.

Now, let us turn to the surgeons who have put their judgments on record, and see what they have to offer with regard to Dr. Bristow's "fatuous belief in a fallacy."

CHEYNE and BURGHARDT ("Manual of Surgical Treatment," Vol. VI, page 382) say: "Another very important point is whether under any circumstances it is well to advise removal of the appendix when there has only been one attack, the general opinion being apparently that a secont attack should be waited for. In our opinion the answer to this question depends on the severity of the attack. In the case of a mild one, which may quite well be catarrhal in nature, we do not advocate operation. But, when the first attack has been severe and accompanied by symptoms of peritonitis, such alterations in the appendix itself are indicated as to remove the case from the category of simple catarrhal appendicitis, and in these cases we see no reason for waiting for a second attack, which, indeed, might prove fatal."

Von Mikulicz and Kausch (von Bergmann's "System of Practical Surgery," 1904) say: "The probability of recurrence may be given as about 20 per cent. Rotter says that in most recurrent cases there is a second attack, but that it is rare to have more than one recurrence, and that this single recurrence may usually be looked for within a year, and very seldom after two years." Rotter followed 110 ordinary cases, and reports that 2 died and 8 were operated upon, and that 90 per cent. spontaneously recovered. "It is doubtlessly true that the majority of attacks of appendicitis are recovered from without operative treatment, etc."

The following straightforward statement from this eminent authority should commend itself to Dr. Bristow as being utterly free from hysterical manifestations: "There is relatively a large group of cases of appendicitis in which the attack is from the start of slight character. Since the general condition of the patient is little affected, there is not much infiltration of the tissues and the fever is slight or becomes so by the third day. In such a case an operation is contraindicated, although the patient or his nurse should be advised that it may become necessary at any time. Furthermore, one should point out the probability of recurrence so that the operation, in the interval, may be performed if desired."

Dennis (*Medical News,* Jan. 9, 1904) says: "When simple catarrhal cases are doing well after 36 hours they should be allowed to recover and should be operated upon in the interval."

Moore (*Jour. Am. Med. Assoc.,* 1905, page 1976) says that operation should not be performed when the patient is evidently convalescing.

Wood (*Brooklyn Med. Jour.,* Aug., 1902) says: "If we operate whenever we make the diagnosis of appendicitis, we must defend our course on the ground that it is not possible to make a prognosis. We are not doing the best for some, perhaps the larger proportion, of the patients intrusted to our care."

The late Dr. Fowler was among the radical surgeons in the treatment of this disease, yet in the last record in literature of his views on this subject he says ("Treatise on Surgery," Vol. II, 1906, page 103): "As soon as the diagnosis of *progressive* appendicitis is assured, the abdominal cavity should be opened and the appendix removed. By progressive appendicitis is meant a condition in which, with no opium administered, *decided tenderness* exists in the right iliac fossa at the end of twenty-four hours from the commencement of the attack."

It is, perhaps, inappropriate to introduce in this discussion the teaching of Ochsner which differs so radically from all previous practice; however, the results which he has secured make any discussion incomplete without some reference to his views.

Ochsner practically never operates after the disease has extended beyond the appendix itself until the attack is over, except to open an abscess. He relies on non-operative methods. In 1902 he reported 192 acute cases with 6 deaths (mortality, 3 per cent.). (*Medical News,* May 2, 1903.) He reports 566 cases of all kinds with 7.3 per cent. mortality. Concerning operation at the most opportune time, he says (Ochsner's "Handbook of Appendicitis," page 92): A competent surgeon should do the operation, "but if there is no such man available, then I should say most emphatically that the patient's chances of recovery are many times greater with the proper non-surgical treatment than with operation. Of course, patients have occasionally recovered, by accident, in the hands of most incompetent surgeons, but the death-rate after appendicitis operations, in the hands of incompetent surgeons, is absolutely frightful." "I am confident that with proper non-operative treatment almost all of the cases which are diagnosed reasonably early may be carried through any acute attack, no matter what its character may be." On page 174 he says that in acute appendicitis he regards keeping the stomach and intestine empty, and thus minimizing peristalsis and intra-intestinal pressure, as of more importance than any other treatment. More lives can be saved in this way, he says, "than by all other methods of surgical and medical treatment combined."

Dr. Bristow's allusions to my classifications utterly miss the point. No statement was ever made by me, either in the paper referred to or anywhere else, that is susceptible to the interpretation which he places upon it. No case under proper management should be allowed to enter the category of those serious conditions mentioned by him. It is one thing for a competent surgeon to operate upon a patient at the opportune time, and it is another thing to promulgate the teaching that every case should be operated upon by somebody. Has Dr. Bristow any conception of the frightful course of mortality that would mark the history of appendicitis, in the present state of medical and surgical enlightenment, if it should become the rule that every case should be operated upon—every one of the "more than 75 per cent." which Dr. Bristow had evidently not yet heard of? Ochsner appears to have such a conception. Dr. Bristow may say that the operation should always be done by a competent surgeon: it is easy to say this, but it would not be done. Not all of the appendicitis cases would be sent to him. There are men operating for appendicitis all over this country, whose names we have never heard and whose statistics we shall never see. The reports of the few men, whose operative statistics we are familiar with, are no more of an index of the operative mortality than are the reporters of these statistics indices of the average surgical attainments of the whole profession.

Dr. Bristow says, "Both forms, gangrenous and perforating, may happen when the temperature has never risen above 99°. I have seen many such cases." Now, here is Murphy's experience with low temperatures (*Am. Jour. Med. Sciences,* Aug., 1904). He reports 2,000 operations. He lays great stress upon the fact that elevation of temperature was present in every one of the acute infective cases in its early stages—in the first 36 hours. In the acute severe infections it was present in a few hours. Murphy states that he would not operate on a case in which he was confident that no elevation of temperature had been present in the first 36 hours.

But Dr. Bristow says that these *many* cases of his *never* had a temperature above 99°. We wonder how often he took the temperature, in order to be able to make this dogmatic statement.

Finally, I desire to emphasize the statement, made in my paper, that, "every case of appendicitis from the beginning should be under both medical and surgical care." It is important that the surgeon should come in touch with the case in the first few hours of the disease. I also repeat that it is poor medicine and bad surgery to go on the assumption that when the physician calls the surgeon it has become a foregone conclusion that the patient is to be whisked to the operating room. It will do the general practitioner much credit when he occasionally finds that he has been on the safe side and has called the surgeon when operation is not indicated. I esteem very highly the judgment of a single physician who has called me to see three cases of appendicitis within a year, none of which I regarded as operative cases, and all of which are well at the present time. I regret that there are many horrible cases of appendicitis seen too late by the surgeon, and brought too late for operation. This unfortunate situation will only be remedied when every case comes early under surgical observation. It will not be helped by dissembling the truth and creating a scare which does not exist, nor by passionate epistolary outbursts. The simple truth is what we are after. Each case is serious as well as peculiar, and demands conscientious and well balanced surgical judgment applied to that particular case.

James P. Warbasse.

TRANSACTIONS

OF THE

ASSOCIATED PHYSICIANS OF LONG ISLAND.

TETANUS ON LONG ISLAND.

THE BACTERIOLOGY OF TETANUS.

By Joshua M. Van Cott,
Brooklyn.

IN 1884, Nicholaier produced tetanus by inoculating laboratory animals with garden earth. His experiments were confirmed by Carle and Rathbone in 1884. In 1886, Rosenbach produced this disease by inoculating animals from wounds of human beings. Three years later, Kitasato, 1889, produced this bacillus of tetanus in pure culture.

Nicholaier's bacillus tetanus has been called the drumstick bacillus because of its resemblance to that object. It grows as slender motile rods 0.3-0.5: 2-4 microns, with round end-spores, 1.-1.5 microns. It stains Gram positive, and the spores are demonstrable by double stain. Pure cultures are difficult to make, because infections are always mixed. This bacillus is an exquisite obligate anærobe, and is grown only with greatest difficulty in the presence of oxygen.

Colonies in gelatine grow slowly and have a central nucleus of orange-yellow color from which rays shoot in all directions. Colonies in agar are more characteristic. Macroscopically they appear as delicate clouds, microscopically as a confusion of fine threads. Stab cultures in gelatine show fine far-shooting side projections, or often clouding around the stab. Liquefaction occurs slowly usually with slight gas formation. Stabs in agar develop "pine-tree" growths. Bouillon is moderately clouded. Blood serum is not liquified. With their growth tetanus bacilli always develop evolution of gas with an unpleasant odor. Tetanus bacillus develops also in acid media, but evolves no acid. It grows in milk without altering it. It does not hydrate starch, according to Sanfelice. Growth at ordinary temperature 20-24° is slow, 3 to 4 days, and is arrested at a temperature below 14°. At 37° growth is much more rapid, spores forming after 30 hours. Ordinarily an exquisite obligate anærobe, has been cultivated as an anærobe with loss of virulence.

Pure cultures produce in mice, guinea pigs, rabbits, rats and many other animals typical tetanus in 1 to 3 days. Inoculation of infinitismal doses subcutaneously from old cultures produces typical tetanus. Larger doses are required for less susceptible animals, as pigeons, etc. Chickens are almost immune. Very small doses of attenuated organisms will produce chronic tetanus with recovery in three or four weeks. It is a notable fact however, that large quantities of tetanus spores freed from toxine, and in pure culture may be thrown into the circulation of an animal, and again disappear without producing any symptoms whatever. There seem to be two reasons for this; first, that these spores only multiply in living tissues in company with other symbiotic organisms, as e. g. pyogenic bacteria; second, that the saemiology and pathogenesis of tetanus depends upon the toxic products of this bacillus, and not upon any mechanical effect. Indeed, it is a well-known fact that the tetanus organism remains local to the area of infection, rarely gaining entré into the circulation, but producing toxic bodies which in very minute quantity cause the characteristic phenomena of the disease.

The autopsy reveals small hemorrhagic areas at the site of inoculation; otherwise no changes are found in any of the tissues or organs. The bacilli are found with difficulty at the site of the inoculation, but never in organs, or at the most in the regional lymphatics. Vaillard, Vincent and Rouget conclude from the autopsy findings, that tetanus bacilli in pure culture cannot multiply in the body in pure culture and, therefore, do not act as infectious organisms but rather through the toxines they produce. Mixed infections, especially with the presence of trauma and foreign bodies, are far more virulent. Tetanus spores are very widely distributed over the earth, being probably deposited in the manure of animals. Sanchez-Toledo, Vaillon and Sanfelice induced tetanus in many cases from the manure of animals, in which the disease itself did not exist.

The spores are the enduring form of bacillus tetanus. They have been known to retain their viability in splinters of wood for a period of eleven years. Man and nearly all domestic animals develop tetanus spontaneously. This is explained by the fact that the point of inoculation is small, and goes unnoticed, or that a wound may entirely heal before symptoms develop. Where a small amount of pus gathers in the wound, and contains tetanus spores, together with other bacteria, its inoculation into other animals, if persisted in, rarely fails to produce the disease. Where it does fail, the evidence goes to show that the tetanic condition is produced less from infection than intoxication.

Tetanus neonatorum and t. puerperalis are the outcome of navel and uterine invasion by the bacillus tetanus.

Rheumatic tetanus is still obscure in point of its mode of origin.

Nicolaier's bacillus tetanus was the first micro-organism successfully employed to demonstrate the protective and healing power of blood serum from immunized animals. Filtrates from pure cultures of the organism were treated with iodine trichloride, or Lugoll's solution, and thus weakened injected into animals in increasing doses until they would take the undiluted toxine. The differential diagnosis of tetanus is not difficult, as no other organisms are known to exist, which will produce a similarly acting toxine. Biregen has isolated four toxines from tetanus cultures.

1. *Tetanin:* a very toxic oily substance which causes first a peculiar rigidity, soon followed by clonic and tonic spasms.

2. *Tetanotoxin:* similar to, but less rapid in action than tetanin.

3. *Spasmotoxin:* altogether similar to tetanotoxin.

4. *An unnamed base*, which, aside from the tetanic attacks, causes enormous lachrymation and salivation.

The tetanus intoxication gives rise to a group of symptoms somewhat different from those of any one, or combination of less than all of the above named group.

The experiments of Marx in vitro with brain emulsions demonstrate the probability that the nervous substance (probably the ganglionic cells) locks the toxin, and is antitoxin.

The tetanus toxin travels along the motor nerves, and first attacks the anterior ganglia of the spinal cord.

The tetanus antitoxin seems to be somewhat uncertain of action, and is relatively expensive per capita.

The literature of tetanus is daily growing, and is far too extensive for even a brief review in a ten minutes' paper.

In relation to Ehrlich's side-chain theory, the ganglionic receptors lock to tetanus cytotoxins.

TETANUS ON EASTERN LONG ISLAND.

By Frank Overton, M.D.,
PATCHOGUE, N. Y.

BEFORE the Pennsylvania tunnel was projected, Long Island was best known to the world by its fame for clams and its notoriety for lockjaw. As a medical student, I remember meeting Dr. St. John Roosa and how the doctor questioned me about lockjaw when he learned that I came from Long Island; he rather thought that I was covering up an unpleasant fact when I told him that I had heard of but a single case anywhere near my home.

There undoubtedly were more cases formerly than now, and for this Dr. Skinner assigns a reason in his report. Still, the number of cases of tetanus that used to occur before the discovery of antiseptics is far smaller than the number of cases of blood-poisoning would lead one to expect. A reason for the notoriety and publicity which has been given to Long Island lockjaw is suggested by Dr. W. W. Hewlett, of Babylon; in a letter to the committee, he says:

> "The unenviable reputation for tetanus in Suffolk County, particularly in the towns of Southold, Brookhaven and Southampton, was, in my opinion, largely due to the enthusiasm of the late Dr. B. D. Carpenter, of Patchogue, who claimed to have cured a large number of cases by the application of ice to the spine.
>
> "Both the late Dr. Skinner, father of a member of your committee, and Dr. Levi D. Wright, of Bridgehampton, told me they knew of several cases that Dr. Carpenter reported as being cured of tetanus that were cases of other nervous diseases, viz.: hystero-epilepsy, spinal irritation, etc. The late Dr. George M. Beard, author of the term "neurasthenia," began an investigation of the theory that the use of fish as a fertilizer was in some way connected with the etiology of tetanus; a theory which he soon abandoned after communicating with the practicing physicians of the County. Dr. Beard found that most of the physicians were in the habit of treating their cases of wounds (infected) with turpentine, a practice which he promptly endorsed. I have heard Dr. Dawbarn, of the N. Y. Polyclinic, say he thought there was no better remedy for cleansing dirty and infected wounds than turpentine.
>
> "Yours very truly,
> "(Signed) W. W. Hewlett."

Your committee sent a copy of a circular to representative physicians in all parts of the Island outside of the city; thirty-five replies were received, making a survey of the cases occurring over the whole Island. While it has often been impossible for physicians to recall names, dates and other details, yet it is probable that the committee has information concerning over three-fourths of the cases of tetanus that have occurred on Long Island during the past twenty years.

NUMBER.

The number of cases reported is sixty-seven, or an average of about two from each physician; many physicians in long practice report none at all, and it is probable that some are reported twice, so that the actual number is below sixty.

During 1905, three cases were reported, from Easthampton, Westhampton and Smithtown; two of these recovered.

During 1906, only one case was reported, and that was a fatal case at Bayshore.

LOCATION.

All sections of the Island seem to be equally free from the disease; the eastern end showed no more cases than the western end.

CAUSE.

The causes of fifty of the cases were given:

Cuts	13
Punctured wounds	9
Gunpowder	6
Compound fracture	2
Laceration and contusion	9
Infantile	10
Vaccination	1
Total number of cases	50

Dr. Merritt gives interesting reports of three pairs of cases: Cases I and II occurred in the same house in Oakdale; number one was a three-year-old child who died from a scratched foot. Three years later, a week-old infant died from tetanus.

Cases III and IV occurred in a

house in Bohemia, where three families lived; in 1898, a six-weeks-old infant died from tetanus, and in 1900 a six-days-old infant died from the same cause.

Cases V and VI occurred in the heart of Sayville, in houses about 200 yards apart; both were infants and were taken at an interval of about ten days.

MORTALITY.

The death rate of sixty-two of the cases was given; thirteen lived and forty-nine died; the mortality rate was 80 per cent.

ANTITOXIN TREATMENT.

Seven of the reported cases were treated with antitoxin, and five died; giving 70 per cent. mortality. In several, however, death occurred within a few hours of the doctor's first visit. The reports as to the immunizing use of antitoxin were too vague and meager to be of value. Many report that they have used it; no one seems to object to it.

TETANUS IN ANIMALS.

Dr. J. C. Case, V.S., of Cutchogue, reports forty cases in horses during his seventeen years of practice; six recovered. This mortality of 80 per cent. accords with the figures in the mortality rate for human beings. He also reports two cases in young pigs, following castration.

Dr. J. L. Wells, V.S., of Patchogue, reported for 1905, two cases in horses, both recovering, and the case of one dog that died. For 1906, he had three cases of horses, all fatal. The reports of these two veterinaries gives an idea of the prevalence of lockjaw among animals. Nearly all of the practicing physicians report no knowledge of the disease among animals.

CONCLUSION.

Tetanus is an extremely rare disease in all parts of Long Island. There is no reason to suppose that the disease will ever become either prevalent or of malignant type.

COMMENTS AND CONCLUSIONS AS TO TETANUS ON EASTERN LONG ISLAND.

By B. D. Skinner, M.D.,
of Greenport.

THE first comment I would make, although not germane to the subject under consideration, is in relation to the make-up of the committee, that they are not in close enough touch to conduct the investigation as a body, and if I trespass, or cover some of the same ground as other members of the committee, this must be my sufficient excuse. I probably have seen but very few of the answers sent in, but such as have come to me have been sent to the chairman of the committee, so that some of the conclusions arrived at are from recollection of a study made of the matter some years ago, and any criticism I may make as to the use of antitoxin is purely theoretical, as I have had no experiences with it, not having had a case to treat since antitoxin has been manufactured.

It seems to me that from the nature of the questions asked in the circular, there is too much danger of duplication to use the material as reliable for statistical purposes. For instance, in my own answers I have reported three cases, two who were patients of mine, and one who was a patient of my father, and whom I saw before beginning practice, but all three from a certain field or territory extending from Mill Creek, in the town of Southold, to Orient Point; but I have known another case, that of a prominent lawyer in the same town, but not in the same territory, which was undoubtedly known to several physicians to whom the circulars were sent, and if reported by all without the name might appear as several cases. Another source of error which, perhaps, is common to all such investigations is error of diagnosis; for instance, one of the answers which came to me gave the case of a child, scalp wound, incubation three days, death.

Without further detail of the case, giving the nature of the trauma which caused the wound, the incubation being only three days, and the wound being of the scalp, would not the committee be justified in not accepting it as an undoubted case of tetanus for statistical purposes? The cases I have spoken of above as included in my answer to the circular were probably all that occurred in man for a period of fifty years back from the present time, in the territory mentioned, while for a period of fifty years previous to that, in the same territory with a smaller population, I was able to collect some ten or twelve cases, and there is no reason to think it was different elsewhere on Long Island, so that I conclude it was much more prevalent in former times than in recent years. This I believe to be due not so much to improvement in treatment as to the changed customs of the people, which make them less liable to the class of wounds which are most often followed by this disease. To illustrate: years ago, in cultivating a field of corn, there would be four or five men barefoot using hoes; to-day, one man sits on a cultivator with his feet comfortably shod. In animals I think the lessened prevalence is almost entirely due to the use of antiseptics, greater cleanliness and care of the animal, and the use of sterilized instruments in operation.

In Vol. XII of the 10th Census of the U. S., Part II of Statistics of Mortality, page 474, the total number of deaths from tetanus for New York State, Group I, which includes the counties of New York, Kings, Queens, Richmond, Rockland, Suffolk and Westchester, exclusive of New York City and Brooklyn, is given as 22, for Brooklyn 40, so that in round numbers, in Brooklyn there was one death from tetanus in every 14,000 of population, while in the rest of the group, exclusive of New York City, death occurred from tetanus once in every 16,000 of population. I conclude, therefore, that there is not a greater amount of tetanus in the eastern portion of the island than in other parts. Page LXXXI of the same volume, shows by shaded map that Long Island has from two to three deaths from tetanus in every 1,000 deaths from known causes, while along the coast from North Carolina down, through the Gulf States, in the Mississippi Valley, in the Valley of the Ohio, and in the Missouri Valley, there were ten or more, and in a large portion of the United States, other than that mentioned, the number was the same as on Long Island; therefore I think Long Island as a whole is not entitled to any distinction in the matter of tetanus.

As to antitoxin, I think that any experiences with it as to immunization in human beings are utterly worthless, as there is no way of telling whether any given wound is infected with the tetanus bacillus or not. As to its being of value in treatment I have great doubt. Brieger, I think it was, who isolated from a culture of the bacillus a toxin which in its chemical formula very closely resembled strychnine, if I recollect rightly, there being a difference of two atoms in the nitrogen constituent, and the symptoms of the disease resembling so closely those of strychnine poisoning, that it seems to me that given a certain amount of the toxin there would be no more hope of the patient under any treatment than there would be for a person who had taken two or three grains of strychnine.

In the Journal of the American Medical Association for July 20, 1905, in a study of 1,200 cases by J. M. Anders and A. C. Morgan, they state that "in a well developed case of the disease it has no appreciable beneficial effect, neither reducing the mortality nor hastening recovery."

Dr. James P. Warbasse stated that he was interested in Dr. Van Cott's last sentence, which was that the value of antitetanic serum is very questionable. It is very questionable as a therapeutic measure, the speaker said, but as a prophylactic measure it is a serum of great value. The treatment of tetanus has really advanced but little in the last fifty years, he maintained. If one consults the tables of Anders and Morton, reporting some 1,200 cases compiled from the United States statistics from the year 1850, one finds that in the cases developing within five days after the infection there was a mortality of 58 per cent. The mortality in cases having an incubation period of five to ten days was only 63 per cent. At the present time, under our best treatment, we have a mortality greater than that. Possibly, the speaker said, there are discrepancies in these statistics, which might account for the difference from the present day mortality.

From his own practical observation with tetanus, Dr. Warbasse said that he has learned not to place too great dependence upon statistics, for there is often discrepancy in the question of the period of incubation. It had been wisely stated that when we first observe the symptoms of tetanus, we should not say that tetanus is developing in the patient, but that the patient is dying of tetanus.

Our prognosis, the speaker said, depends very largely at the present time upon the interval elapsing between the period of infection and the development of the first clinical symptoms. He had observed two cases which showed the difficulties of forming a prognosis in this manner. He has seen a case develop extremely virulent tetanus after an interval of twenty days from the receipt of the wound in which the infection was presumed to have taken place. He believed in that case that a mistake had been made in regarding it as a twenty-day period of incubation. He could not reconcile it with any other condition than that the patient had developed tetanus in a wound which had existed for twenty days, but in which the tetanus bacillus had been introduced some time between the receipt of the wound and the development of the initial clinical symptoms of the disease.

Again, he had in mind a case which illustrated another explanation of "delayed tetanus." He had seen a patient in whom a large amount of dirt was ground into a wound. This patient developed tetanus after a period of twenty days, which was extremely severe. Dr. Warbasse suggested that in such cases as this it was possible that the tetanus bacilli had remained in the wound covered up or hidden and held in the insoluble dirty material that was in the wound, and after they had been liberated from the dirty material in which they were held grew gion and injection into the cauda symptoms.

Tetanus is essentially a disease of the motor nerves. Experience is showing that the antitetanic serum to be of use after the symptoms begin must reach the origin of these nerves, and that that is best accomplished by its injection into the main nerve trunks running from the wound region and injection into the cauda equina.

Dr. E. S. Moore, Bay Shore, said that the case Dr. Overton spoke of was his own patient at Bay Shore in 1906. This boy was accidentally shot by a companion. The bullet entered the foot; his companions took his shoe and stocking off to determine the extent of the injury, and in their efforts to get the boy home dragged him through the woods, the injured foot often trailing along the ground. Tetanus in this case developed within four days. Deep incisions were made at the point of injury for the purpose of cleansing and draining the wound, antitetanic serum was injected, but in spite of everything the boy died the sixth day after the day of injury. Comparing this case of tetanus with others that he had seen, he believed that the tetanus antitoxin had been the means of moderating the spasms.

Dr. Figueira said that in the matter of the treatment of tetanus by antitoxin there were a few facts well demonstrated. It had been shown in Pasteur's Institute that the toxins of the tetanus bacilli exert their deleterious influence for the most part on the ganglia of the spinal cord. It had also been shown that the toxins enter the spinal cord and canal by means of the axis cylinders of the motor nerves in the part infected. It had been shown that after an animal had been inoculated with tetanus, the injection of the antitetanic serum into the motor nerves of the part infected would prevent the death of the animal. John Rogers and Willy Meyer have reported several cases treated by the injection of antitetanic serum into the motor nerves leading from the point of infection, in which recovery took place.

The speaker stated that he thought the treatment of tetanus by tetanus antitoxin had been carried on in a loose and vague way. Since the injection of the motor nerves leading from the seat of injury by antitetanic serum would prevent the death of an animal, and since it had been shown that the poison traveled by way of the motor nerves, it seemed to him that we should expose the motor nerves and inject them with antitetanic serum above the point infected. In those cases where the motor nerves leading from the part could not be exposed, as after appendectomy and in puerperal cases, he thought the antitoxin should be injected into the spine itself. He thought that the failure of antitetanic serum, when injected into the brain, was due to the fact that the virus reached the spinal cord before traveling to the brain.

Dr. Bell, East Hampton, believed that Long Island has an undeserved reputation for tetanus. He had lived twelve years at East Hampton, and during that time had only seen two cases of tetanus; one occurred at Montauk Point, and another was a man who came over from Connecticut.

The speaker had seen innumerable cases in animals diagnosed by veterinarians as tetanus, most of them after animals had had their young. He knew that a number of these cases were septicæmia.

Dr. Frank Overton, Patchogue, said that the speakers seemed to put great stress upon the fact that tetanus antitoxin was useful as a prophylactic measure, and in that connection he would state that every Health Officer is supposed to have antitoxin on hand, supplied by the State, and it is distributed freely about the Fourth of July.

Dr. J. M. Van Cott, Brooklyn, said that all the reports and discussions seemed to agree that tetanus was a rare disease, and that it was a disease which remains in loco; that antitoxin is not any good for the actual attack, but that we may expect a great deal from the experiments made by Morse and others.

TRANSACTIONS
OF THE
BROOKLYN PATHOLOGICAL SOCIETY
EDITED BY CLAUDE G. CRANE, M.D.

474th Regular Meeting, February, 1907.

The President, R. W. WESTBROOK, M.D., in the Chair.

THE ETIOLOGY OF CAISSON DISEASE.

THEORIES BASED ON CLINICAL OBSERVATIONS OF THE DISEASE.

By J. V. GALLIVAN, M. D.

THE physical laws of nature enter to a great extent into the etiology of caisson disease, and these physical laws acting, affect metabolism. The relation of the fluids of the body to its tissue structure is important in the study of the disease.

CASE I.—A man had been working for eight hours in 38 lbs. of pressure in the 42d Street Tunnel. After leaving this pressure, he crossed over to Long Island City, and when he had reached the Ferry House, he was suddenly attacked by the disease and collapsed. He was immediately removed to the medical lock or caisson, and the pressure was raised as high as forty-three pounds to the square inch above normal.

Upon examination, his skin was found cold and clammy, and of a good color, his muscles set and rigid, and his body trembling. Respirations were decidedly labored, and sounded as if he had œdema of the lungs; his condition reminded him of a case of carbon monoxide poisoning. The symptoms never having improved, after four hours from the onset of the disease, he died.

Forty hours afterwards an autopsy was performed. The skin was pinkish, lips red, appearance full and the absence of lividity. Upon cutting into the body, the muscular tissue and blood were very red, the internal organs, especially the lungs, were congested, and the tissues and fluids of the whole body markedly infiltrated with gas bubbles. Upon cutting into the large blood vessels, the scarlet blood poured out, mixed with air emboli; parts of the various organs of the body were taken for observation, and for days afterwards these tissues still contained air and putrefaction seemed to be retarded.

It is important to consider how this gas got into the system, and if it were forced into the body while viable and being subjected to air pressure, in what condition did it exist? A solution or an infiltration? And why, when pressure was removed, did gas remain in the system in the form of an infiltration?

It probably could be demonstrated that while the body had vitality, and was being subjected to air pressure, gas was forced into solution in the fluids of the body—and because of its vitality, keeping the fluid circulating through a network of tissue structure, and exposing it for hours to high atmospheric pressure, the fluids of the body became supersaturated with gas.

When pressure was relieved, the excess of saturation became an air infiltration in the network of tissue structure, because the body had lost its vitality, and the fluids had ceased circulating.

Other examples seem to bear out this idea. In treating men injured in the tunnel, air bubbles were found in their wounds and bruises, even after a lapse of twenty-four hours.

In the case of a compound fracture brought in from the tunnel recently, the writer was surprised to note how quickly the leg became swollen; examination showed air emboli in the wounds, the bruises, tissue and blood.

Further, it has been observed that there is a cycle of sensations which occurs, and seems to be common to all men entering, staying in, and coming out of, compressed air. First, a feeling of warmth while going in the air. Second, a feeling of stimulation and exhiliration while being in. Third, a sensation of coolness while coming out.

These observations, and the facts deduced from the autopsy, led to the following conclusion.

In the first place, the body is composed of two parts—a solid portion, the smaller; a fluid portion, the larger. The latter obeys the physical laws, just as any other fluid. If it were possible to withdraw the fluid portion, we would have left the solid portion, and the latter would be in the form of a very fine network of tissue structure, varying in density in different parts of the body.

Normally in and through this network of tissue substance we have in life a circulating fluid, bathing this network in all parts of the body.

Now when a gas goes into solution under pressure in this fluid, it obeys the well known physical law that heat is imparted to the fluid by the gas; again, if the pressure and temperature be constant, and this fluid keeps circulating and in contact with the gas, the fluid will become saturated with the gas for that particular temperature and pressure.

When gas goes out of solution it always deprives the fluid of heat, which is taken in the form of latent heat of vaporization.

All the foregoing clinical observations, coupled with the physical laws just quoted, led to the following explanation of the phenomena occurring in caisson disease.

Caisson disease is simply a manifestation of lowered vitality charged to excess with gases.

In a normal healthy body the vitality depends almost entirely upon a good circulation, as it is the latter which supplies all the needs of the body.

We live normally in a pressure of one atmosphere of fifteen pounds to the square inch, and at this pressure a certain amount of gas goes into solution in the fluid of the body as it goes into any other fluid.

When this pressure is increased, more gas goes into solution, obeying the physical law just stated, and gives heat to the solution, and thus we have the feeling of warmth in going into compressed air.

On the other hand, when coming out the pressure is lowered, the gas goes out of solution, and this takes away heat, and we have an explanation of feeling cold.

A fact that is well known and taken advantage of in general medicine is that heat promotes metabolism and cold depresses metabolism.

This explains the feeling of exhilaration while being in the caisson.

When a man has worked for a time in a pressure of thirty-five pounds to the square inch, and the normal is fifteen to the square inch, and he has been exercising himself in the pressure, thus stimulating his circulation, his system becomes supersaturated with gas for that temperature and pressure. When that pressure is relieved, it requires the vitality of the system to get rid of the excess of saturation, thus requiring a good circulation or a good vitality to get rid of this excess through the natural channel.

If this vitality be lowered beyond a certain point, this gas will collect in that part of lowered vitality, and furthermore lower the vitality of that part by the collection and expansion of gas bubbles, giving rise to a pathological condition and cause of caisson disease.

Normally this does not happen, as the vitality is sufficient to give a good circulation, and thus by agitation and movement prevents the formation of gas bubbles. But, when from any cause, the vitality is lowered, such as by impure compressed air, chronic constitutional disease, or by coming out too quickly, then we have a poor circulation, and when pressure is removed, instead of the gas being carried off, we have it forming in the fluid and being held by the meshes of the network of tissue above referred to.

This explanation may be illustrated by a simple experiment.

If a sponge finely divided and held together by thread be put in an ordinary citrate of magnesia bottle, and be fixed in position by a wire netting, and the bottle filled with water charged with gas, it will be observed that by relieving the pressure, gas bubbles will collect, expand and adhere to the spongy network; this collection of bubbles can be prevented by keeping the fluids circulating or agitated.

The reason why the nervous system is so often affected in caisson disease, aside from the poisons that result from lowered vitality, is because the spinal cord and brain are surrounded by dense tissues and dura mater and bone.

The spinal cord and brain is a semi-fluid substance. In air pressure it absorbs gas in proportion to its fluidity, and when the pressure is relieved the gas is obstructed in its exit by the dense surrounding structures or tissues, it collects, expands and gives rise to pressure symptoms.

Dr. S. A. Marshall, speaking of the symptoms of caisson disease, said that for the past six months his work had been in connection with the construction of the Pennsylvania Railroad tunnel. He had come across a good many cases. There are a number of different symptoms, he stated, but the most numerous are what the workmen call "the bends," pains in the knees and elbows, oftentimes the small joints of the hands and wrist. They simulate rheumatic pains, and to a great extent are the same, but the patients all claim they are a good deal worse than any rheumatic pains could be.

A little more severe form, the speaker said, is where we have some numbness of the thighs and stiffness of the legs at the knee joints. If the patients are not treated immediately after their occurrence, sometimes a great deal of stiffness develops. That may go away after recompression for an hour, or may remain for days or weeks, depending on the severity of symptoms.

Again there are cases where there are some stomach symptoms; nausea, vomiting and terrific cramps in the stomach occur, and these are relieved in no way except by putting the patients in the air (recompression). It seems most of these cases are due to men going into compressed air on an empty stomach.

There are also cases, which are more severe still—cases of staggers, which, of late, have been quite frequent. These cases are evidently caused by bubbles of air in the semicircular canals. There is a great deal of vertigo, and considerable dimness of vision. It is almost impossible for the person to stand up. They will wabble when they stand on their feet or attempt to walk. These cases are not helped, as a rule, when they are put back in the lock. They get along better by rest, especially by keeping them quiet after they have been decompressed slowly. They are never fatal, but symptoms may last several days.

Fatal cases are, as a rule, in a semi-conscious or complete unconscious condition. They drop in their tracks when in the drying-house changing their clothes. Some semi-conscious cases, when put in the air lock, will sometimes brace right up and come out of the first decompression and be able to walk; again there is afterward very marked signs of respiratory trouble, with little improvement from the recompression, irregular breathing, which becomes shallower from the minute the pressure is normal, and we can see with two or three decompressions there is no hope for them, in spite of powerful stimulation. We oftentimes give them oxygen in the air lock after they come up, but it does not seem to help the respirations, which become shorter and shorter, and the heart and respirations give out together. A good many of these cases develop erythematous areas all over the body; it may be hours before death. The areas in some cases are very marked, and of all sizes. They are very bright at first, but gradually fade away. Occasionally one can feel air crepitus beneath the skin of the extremities, of these cases.

TRANSACTIONS

OF THE

BROOKLYN SURGICAL SOCIETY.

Regular Meeting, February 7, 1907.

The President, O. A. Gordon, M.D., in the Chair.

NON-TROPICAL ABSCESS OF THE LIVER, WITH REPORT OF A RECENT CASE.

A paper with the above title was read by Walter A. Sherwood, M.D.

Dr. Lewis S. Pilcher said that he had repeatedly, even in later years, resorted to the aspiring needle for diagnostic purposes in connection with supposed abscess of the liver, and he did not know that he would abandon it quite yet. Granted, he stated, that instead of thrusting the aspirating needle through the overlying superficial walls that cover the liver, we abandon that procedure, and first make an incision into the peritoneal cavity and expose the liver there, unless the pus accumulation in the organ is sufficiently great to frankly reveal itself, as undoubtedly it would in many cases, nevertheless, in many instances, when the liver was uncovered by the opening into the abdominal cavity, one would be still quite as much at a loss as to the real conditions within the organ as they would before they had made the exposure by the incision in the abdomen. Also one has to resort to the aspirating needle for the purpose of completing the exploration, and one is just as much in danger of carrying infected material on into other portions of the liver by such aspirating needle, thrust in with an open abdomen, as by a needle inserted through overlying parieties in the first place. He had thought, therefore, if one was to use an aspirating needle at all, it was a proper thing to do it before uncovering the liver, and hence he had done it again and again, and he did not know that any evil had resulted from the procedure. If the liver is greatly enlarged, if there are evidences of pus accummulation in it, such as give a very good clue and guide as to the object for which an operation is to be done, we may properly omit this preliminary exploration and at once uncover the point of infection, and proceed either by the trocar or by the knife to localize and open the pus accummulation.

The speaker stated that he had hesitated many times when there was some reason for believing that the liver was infected and the diagnosis was obscure, to open the abdomen and explore until he had been able to elicit evidences of pus in the liver by the trocar thrust in from the surface.

The best method of treatment when an abscess has been discovered are well settled, he said, and had been well exemplified in some of the cases, which the writer had detailed.

Dr. J. B. Bogart said that he was inclined to take issue with his former chief. He could not understand how a puncture with the exploring needle can be as safe through the chest wall in the direction of the liver as it could be, if it became necessary, after the abdomen was opened. When the point of the needle is introduced, it can be placed directly in the liver, and we make sure that we are not going to pass it through something else in the meantime. It seemed to him that, in many cases, having opened the abdomen and palpated the liver, and being able to examine the adjoining organs and the conditions present, that there would be no need for a puncture, that the diagnosis would be generally cleared up by the incision and by the palpation, as was seen in Dr. Sherwood's case.

As to the treatment of the condition he did not think there could be any doubt.

Dr. R. W. Westbrook stated that he had seen two instances that he could recall of single abscesses in the right lobe of the liver, but not so easily explained as in Dr. Sherwood's case. He thought the injury in this case explained the etiology readily, because traumatism is such a well-known cause of single abscess in the liver. The furunculosis he should think was not an important factor.

The two cases that he referred to were not explained at all. There was no trauma, the patient had not been in the tropics, and yet they were single abscesses. In one of these cases the projection was markedly on the abdominal side of the lower surface of the liver. The abscess was opened with the cautery and drained. In the other case the pus was drained through the chest wall, a previous exploration being done with the needle. The speaker said that he thought it a good plan with an abscess in the right lobe of the liver, to drain by excision of a rib. If the pus is pretty close to the chest wall, it is a very excellent way to drain the abscess, and you can determine very well with the exploring needle where it is. After the abdomen is opened he thought that an exploring needle comes into play. It is not often an easy matter to localize and decide just where an abscess of the liver is, and aspiration then becomes a very useful means of locating an abscess.

As regards ordinary aspiration through the abdominal wall of any viscus or organ he thought it very risky, unless it is to be followed up by an immediate incision for drainage. He would not think of aspirating a gall bladder. He had aspirated ecchinococcus cysts where there was no infection, but he would not aspirate through the abdominal wall generally, except as a preliminary measure to be followed up with thorough drainage. He had pushed an exploring needle well within the liver, and it was never followed by infection, although it went through pus. He thought once he had an abscess of the liver following appendicitis, but it was a subphrenic abscess. Here he passed the exploring needle through the chest wall and got nothing but blood. He passed it a second time and again got blood, but drawing the needle out slowly he got pus before he went through the chest wall. There he exsected a rib or two ribs and drained the subphrenic abscess, and it healed very nicely indeed.

Dr. W. A. Sherwood, in conclusion, said that the remarks he had made in his paper about the use of the aspirating needle did not refer to the use of it during an operation. He simply referred to the use of the needle previous to operation with a view to establishing a diagnosis. In the case that he had operated on and had already mentioned, there was no opportunity to use a needle at the time of operation, because, on simply introducing the hand to the under surface of the liver, the abscess cavity was opened. If he had used a needle in this case previous to operation, and had not been fortunate enough to find pus, operation would possibly have been deferred, and this abscess would have ruptured into the general peritoneal cavity. It was just about to rupture when the patient was operated on.

TRANSACTIONS

OF THE

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held January 9, 1907.

Dr. Leon Louria in the Chair.

PRESIDENT'S ADDRESS.

Dr. Louria, of Brooklyn, N. Y., delivered his inaugural address. As the first president of this new organization, he alluded to the motives that prompted the launching of a new medical society. The professional activities of its members were confined to a certain locality and to a particular class of people. Some of its members rarely took part in the discussions of other societies, because, removed from the circle of their intimate confrères, they were in the unfamiliar atmosphere of those larger organizations. Not relying on their own abilities and experience, they hesitated to enter the discussions, and tiring of remaining passive members, they either absented themselves from the meetings or dropped away entirely. It was the aim of this new society to develop the latent energy and ability of its members. Its meeting place was not to be a mere lecture-room for favored speakers, but was to be a forum in which all its members could voice their opinions. In addition, its aim was to invite outside medical forces, and to receive the views of specialists in medicine, but the larger part of its programme was to be reserved for its own members. The members were exhorted to avail themselves of the opportunity of presenting their cases and relating their observations. The active co-operation of those not fortunate enough to be affiliated with hospitals, and whose opportunities for original research were limited, was nevertheless to be highly appreciated. These members were urged to report upon and present cases occurring in their private practice that presented any peculiarity. Bedside observations, for which all physicians had opportunities, were the best sources of medical knowledge. The recital of a case usually awakened a discussion that brought forth new light and new ideas. The success of the Williamsburg Medical Society was to be assured only by the hearty co-operation of its members.

A CASE OF RAYNAUD'S DISEASE.

Dr. Jacob Fuhs presented the history of this case. The patient was a girl 19 years of age. Her family history was negative, with the exception that her father had a gastric ulcer. She had no brothers or sisters. She was healthy until the fourth year of age, when, without known cause, she ceased to grow. She complained of nothing, and ate heartily. When eight years old, she complained of pains in the hands and feet, which suggested to one of the physicians, under whose care she subsequently came, a possible rheumatic origin or her trouble. Six months afterward she was better, but a little later she complained of her stomach. Her abdomen was distended, and she passed large quantities of blood, as much as a quart, and she was very ill. Her physician thought of an intestinal ulcer (typhoid fever might have been the cause). At this time she was very much constipated. She improved until four years ago, when she again complained of epigastric pain. She then came under the care of the speaker, and improved under a diet and a simple treatment with alkalies. For her arrested growth she had been referred to Dr. Koplik, who administered thyroid extract and "malt soup." Under his treatment she had grown four inches. For the last two winters she had noticed that when her feet and hands were placed in cold water, the fingers and toes would turn white and ice cold. Rubbing would bring them back to the natural color. During the summer she was all right. At this time she had also complained of rheumatic pains. During the prevoius winter she noticed that when exposed to cold some of the fingers and toes turned white and cold, and at times became purple. Subsequently, little gangrenous spots appeared on the dorsum of the feet. The same symptoms reappeared the past winter, and in addition gangrenous spots on the under surface of the right thumb and the fingers of the left hand, together with extreme general weakness. In addition to these objective signs, physical examination revealed that she was of subnormal height, being 4 feet 10 inches high. Her heart apex was in the mammillary line and left fifth interspace, and precordial dullness was slightly increased in both directions. The second pulmonic sound was split. The urine showed a slight excess of urates. The blood showed 68 per cent. of hemoglobin, 3,500,000 red blood cells, and 7,200 white blood cells. The feces did not show anything abnormal, except a slight increase in the amount of mucus. There was nothing abnormal in the stomach contents after a test meal. The patient revealed the typical signs of Raynaud's disease, —signs of local syncope of the toes and fingers, and local asphyxia, with patches of gangrene. Dr. Fuhs discussed the history, differential diagnosis, and treatment of this disease.

HEMORRHAGIC EROSIONS OF THE STOMACH.

Dr. Fuhs read this paper. It was based upon three cases that he had recently seen. In two of these cases he was able to demonstrate microscopically the lesions of the disease. One of these showed a chronic catarrhal gastritis, with chronic interstitial infiltration. One specimen showed atrophy of the glands, with infiltration between the tubules. The speaker remarked that most of his cases did not suffer from severe pain. Only two of these had complained of very severe epigastric pain after meals. Epigastric tenderness was marked in all the cases. In the majority of the cases there was no tenderness at Boas' point. Usually there was moderate emaciation, and in only two cases very marked emaciation. Dr. Fuhs gave a résumé of his cases. The diagnosis depended on finding little pieces in the washings, tenderness in the epigastrium, and the persistence of the disease for years. In differential diagnosis it was necessary to distinguish between this disease and cancer and ulcer. In some of the cases the microscopic examination showed a proliferation of the tubules, and still these cases did not turn out to be malignant. They got well. In none was there any hemorrhage, but the stomach-washings were often tinged with blood. Most of his cases corresponded in symptomatology with those described by Einhorn. Most of the cases got entirely well, and some were only improved. In the majority of cases the stomach contents showed either a reduction in or a complete absence of hydrochloric acid after a test meal. As regards treatment, in the cases with severe pain, and even in those with moderate pain, the bismuth treatment, combined with the silver nitrate treatment, improved the condition. In addition, diet and rest were of value.

THE RATIONAL TREATMENT OF FEVER IN THE PUERPERIUM.

DR. SAMUEL M. BRICKNER, of New York, read this paper. He alluded to the necessity of making a diagnosis in order that treatment might neither be futile nor harmful. The two factors underlying diagnosis were the history of the patient and of his illness, and the result of the physical examination. He said that the label "puerperal sepsis" had been promiscuously applied, without reference to its varying basic lesions. This ignoring of the fact that the parturient woman was subject to different kinds of infection formed a striking contrast to the scientific attitude toward internal diseases in general. This anomalous attitude of the profession accounted for the fact that the treatment of puerperal fever had been wofully misunderstood and misinterpreted. There was no treatment of puerperal sepsis as an entity. Correct treatment depended upon the interpretation of the cause of the fever. The speaker confined his remarks to some of the varieties of puerperal fever. It was necessary to bear in mind the possibilities of a lobar pneumonia, or pulmonary infarct, or mastitis, or thrombophlebitis, as the cause of the fever. It was not at all rare for typhoid fever, malaria, or any of the acute infections, to occur during the puerperium. Even in the presence of any of these conditions, a local examination was not to be omitted. This included inspection of the genital tract and bimanual examination. Microscopic aids to diagnosis were not to be omitted. A leucopenia where a leucocytosis had been expected in a recent case seen in consultation had turned the diagnosis from sepsis to typhoid fever. Negative intra-uterine and blood cultures were comforting when the exact diagnosis was doubtful. Positive cultures suggested not only the diagnosis, but also the appropriate treatment. In classification, the speaker referred to the great subdivisions of extra-genital and intra-genital sepsis. Of the former, the chief forms were mastitis and femoral phlebitis. The most recent treatment of mastitis was making small incisions for the evacuation of pus, followed by the Bier suction treatment. During the pre-suppurative stage the treatment was by means of ice bags and properly applied massage. The ideal treatment was the scrupulous prophylaxis of the nipples. For cracks in the nipple, the speaker has found as quite efficient a 30 per cent. ichthyol ointment in white vaseline, the child nursing through a nipple shield. Femoral phlebitis was not necessarily of a septic nature, and was more liable to occur in women with rapid labors and with varicose veins of the leg. If not of a septic nature, it usually yielded to rest, elevation of the leg, and heat or cold. Intra-genital sepsis comprised extra-pelvic or intra-pelvic lesions. The former included vulvar and vaginal forms of sepsis, and conditions in the abdominal wall, such as necrosis. The vulvar and vaginal lesions were the result of infection of bruises resulting from labor, either being covered by a dirty-grey membrane, or presenting a moderate or extensive necrosis of tissue. Frequently, by means of an intra-uterine douche, the physician succeeded in carrying the infection from the vulva, where it was harmless, to the uterus, where it could become fatal. The treatment of vaginal and vulvar sepsis was the use of a mild antiseptic vaginal douche, after cleansing of the vulva, the insertion of an iodoform gauze strip in the vagina, and the application of a wet dressing to the vulva. Intra-pelvic sepsis included involvement of the cervix, the tubes and ovaries, the parametria or the peritoneum. Of these the speaker confined his remarks to three conditions affecting the uterus and their treatment. In premature rupture of the membranes not followed within eighteen to twenty-four hours by labor pains, he advocated the induction of labor, owing to the easy access of infection from the vulva to the uterus. When such occurred, it subsided under the treatment of intra-uterine irrigation. The next of the uterine forms of puerperal infection was that due to retained secundines. It was the duty of the accoucheur to thoroughly examine the placenta and membranes after delivery, but it was a false theory that advised entrance into the uterus for a small piece of placenta or for a shred of membrane. These usually came away by themselves without causing any disturbance, and were less dangerous than the hand inserted into the uterus. The speaker deprecated the routine treatment of curetting the uterus when an elevation of temperature occurred three or four days following labor. There was no object in curetting an empty uterus, and the result was usually to break down the protecting barrier with which the lymph channels and blood sinuses had been provided. Only when it was positively known that portions of the placenta had not come away was it safe to curette the puerperal uterus, and then only with proper assistance and with aseptic conditions. The sharp curet was out of place, and even the blunt loop could be laid aside for the finger. The third form of uterine sepsis was frequently seen in cases showing on the fifth to the seventh day a chill followed by a high fever. This condition was due to retention of lochia on account of a retroflexion or retroversion of the uterus. The treatment was an intra-uterine irrigation with salt solution, replacing the uterus and keeping it in position by means of a good sized packing in the posterior fornix. There was no necessity of keeping women entirely on their backs during the lying-in period, a posture which favored retroversion. On giving the intra-uterine douche it was necessary to expose the cervix by means of a speculum, and have it brought into view by means of a tenaculum. In relation to puerperal sepsis, the tubes were never involved alone, but were accompanied by a peritonitis of a local type. It was not always essential to differentiate between tubal disease and a parametritis, for this distinction was brought out by the subsequent course, and the primary treatment of both was identical,—namely, rest in bed, ice bags or heat over the lower part of the abdomen, and frequent, long, hot douches. These cases were never to be operated upon in the acute stage; it was necessary to wait until the process had become subacute or chronic. The process when attacked in the acute stage was usually fatal. The diagnosis of acute parametritis was a large, heavy, usually quite immovable uterus, embedded in a hard, dense mass, filling out one or both sides of the pelvis and the posterior fornix. In the pre-suppurative stage hot douches and ice bags were the only resort. It was possible for a woman to get infection in a hematoma resulting from laceration of the lower uterine segment and hemorrhage into the broad ligament. The treatment was incision and drainage of the posterior cul-de-sac. The speaker had confined his remarks to the more common and a few of the rarer conditions occurring during the puerperium, and had purposely omitted mention of the fatal conditions, such as septic thrombosis, and embolism, pyemia and septicemia, violent septic peritonitis, secondary septic endocarditis, etc. In the treatment of the latter, which usually mocked all efforts, the doctrine of *laissez-faire* had saved more than one patient, the physician relying on stimulants, forced feeding, and the harmless measures of local treatment. He achieved the best results in obstetrics, who, in the palace or in the hovel, went about with an aseptic conscience.

MEDICAL NEWS.

Edited by Clarence Reginald Hyde, A.M., M.D.

Members of the different County Societies of Long Island are requested to furnish news items and personals for this column not later than the eighteenth of each month. Kindly mail to the news editor, 126 Joralemon Street, Brooklyn Borough.

Dr. Delatour's Return—Dr. H. Beeckman Delatour, of 73 Eighth Avenue, has returned from California and has resumed his professional work.

Dr. Joseph F. Todd Appointed Visiting Gynecologist to St. Peter's Hospital—Dr. Joseph F. Todd, of 402 Sterling Place, has been appointed an attending gynecological surgeon at St. Peter's Hospital, his term of service beginning April 1st.

Death of Dr. Adam Jameson—Dr. Adam Jameson, brother of Dr. P. Chalmers Jameson, of Montague Street, this borough, was killed in a railroad wreck on the Delagoa Bay line, in the Transvaal, March 13th. Dr. Jameson was well known to many Brooklyn physicians.

Illness of Dr. Jerome B. Thomas, Jr.—Dr. Jerome B. Thomas, Jr., of 30 Schermerhorn Street, during his recent illness was shocked to receive news of his father's death. The elder Doctor Thomas was for many years commanding officer of the National Soldiers' Home at Dayton, Ohio.

Meeting of the New York Obstetrical Society—The New York Obstetrical Society, at its March meeting, was entertained at the Crescent Club by Doctors Dickinson, Polak and Pomeroy.

Appointment of Dr. Le Grand Kerr as Visiting Pediatrist to the Williamsburgh Hospital—Dr. Le Grand Kerr, of 110 Cumberland Street, has been appointed visiting pediatrist to the Williamsburgh Hospital. He has also accepted the position of Professor of Diseases of Children in the Brooklyn Post-Graduate Medical School.

Appointment of Internes for 1907-8 at the Long Island College Hospital—The following members of the Senior Class of the Long Island College Hospital have been appointed internes in the Hospital for 1907-8: Dolier, Rogers, McMinimum, Carroll, Guarino, Edder, McCrea, Wolf and Henderson. Alternates: Kohlman, Morgenthaler, Halperin and Weltman. A radical change has been instituted regarding the service. The successful candidates, in order of their markings, will be given the choice of either a medical or a surgical division, and will continue in that service, only, as junior assistant, senior assistant, and house surgeon or physician, successively. Formerly, an interne had a mixed service, at times being assigned to the medical, and later to the surgical division. The length of service has also been reduced from eighteen to twelve months.

Death of Dr. George B. Fowler—The death is announced of Dr. George B. Fowler, of 18 E. 58th Street, Manhattan, a well-known physician of that borough. Dr. Fowler was a graduate of the College of Physicians and Surgeons in 1871; he was a prominent member of the National, State and County Societies, and at the time of his death one of the visiting physicians at Bellevue Hospital in New York.

Illness of Dr. Palmer—The many professional friends of Dr. Ernest Palmer, of 155 Clinton Street, will be pleased to learn that he is speedily convalescing from his recent severe illness.

Death of Dr. Combes—On March 20th occurred the death of Dr. R. C. F. Combes, of 185 Halsey Street, from pneumonia.

Death of Dr. Brinton—John Hill Brinton, a surgeon of international reputation, died of apoplexy March 22d, at Philadelphia. Dr. Brinton was acting medical director during the Civil War, with Grant at Cairo, and at the battle of Belmont, Mo. He was medical director of the Army of Tennessee. He was assigned as Surgeon-General at Washington, and prepared under orders "The Surgical History of the Rebellion." He founded the Army Medical Museum. He was one of the chief surgeons of the Jefferson Hospital and College. He was founder of the famous Pathological Society of Philadelphia.

Removal Notice of Drs. Beers and Reynolds—Dr. Nathan T. Beers, Jr., of 1265 Bedford Avenue, and Dr. Willard G. Reynolds, of 162 Halsey Street, will open offices together in the Albemarle Apartments, 516 Nostrand Avenue, corner of Halsey Street, after April 1st.

BOOK REVIEWS.

Prevalent Eye Diseases, by Samuel Theobald, Clinical Professor of Ophthalmology, Johns Hopkins University. Published by the W. B. Saunders Company, Philadelphia, U. S. A., 1907.

Most books written upon the subject of Ophthalmology are avowedly intended for the general practitioner and the ophthalmologist, but this is the first one coming under our observation that can be said to be of real value to the general practitioner, and to him we recommend it without the least hesitation.

In presenting the various subjects the author has wisely seen fit to use ophthalmological terms as little as possible, and when necessary to do so has accompanied them with an understandable definition. He has also given descriptions in as brief and direct a manner as is consistent with the object in view.

While claiming that many diseases of the eye may be successfully treated by the general practitioner, the danger points are clearly brought out, and a praiseworthy effort is made to convey to the mind of the reader an understanding of the distinguishing features of those diseases the treatment of which require special knowledge.

The illustrations are of a high order and convey the impressions intended.

Issue is taken with the rather pessimistic view concerning the prognosis of Trachoma, for while fully recognizing the gravity and importance of this disease and its consequences, we believe that most cases taken before the cicatricial stage has set in may be cured by means of operation. Rupturing the granules and expressing their contents, followed by antiseptic applications for some weeks, seem to us the best methods to be employed. We believe that Cupric Sulphate has no proper place in the treatment of Trachoma.

It has been a decided pleasure to review a work which so completely fulfills the requirements of its object, and we feel confident that no general practitioner can afford to be without it. James Cole Hancock.

THE DISEASES OF THE NOSE, THROAT AND EAR. By CHARLES PREVOST GRAYSON, A.M., M.D. 2d Edition. Revised and enlarged. Lea Bros. & Co. Phila. and New York, 1906.

The first edition of Dr. Grayson's book appeared in 1902. The four years intervening have been marked by intense activity on the part of workers in this special field, particularly in the direction of the surgical treatment of suppurative conditions of the accessory sinuses of the nose. As a result, a number of operations proposed and used for a number of years previously have been perfected, so that operators now have a wide choice in the selection of an operation for the relief of the individual case. The growth of this department of nasal surgery has been met by Dr. Grayson by a complete rewriting of the chapter on the subject of diseases of the accessory cavities of the nose. Many excellent cuts have been added for the purpose of more clearly illuminating the subject. Thus we note the addition of seven illustrations to the portion devoted to the surgery of the frontal sinus.

Elsewhere throughout the book we find extensive additions both in subject matter and plates. The work has been greatly improved by these additions. WILLIAM C. BRAISLIN.

A TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY. For Practitioners and Students. By W. EASTERLY ASHTON, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. [Third Edition, Thoroughly Revised.] Octavo of 1096 pages, with 1057 original line drawings. Philadelphia and London: W. B. SAUNDERS COMPANY, 1906.

The fact that this work is already in its third edition within a year after the original publication, testifies to its favorable reception by the profession at large. Some revisions have been made in the original text, but naturally the changes are not great. The study of the blood in relation to surgery, colonic lavage as a treatment in constipation, the treatment of vaginismus, and the microscopic examination and diagnosis of curettings from the uterus are the subjects which have been revised and rewritten. It is a large volume of over 1,000 pages, and considers fully both the medical and surgical aspects of gynecology, each subject being discussed upon the basis of the author's own experience. The book is essentially a text-book for practitioners and students.

A COMPEND OF BACTERIOLOGY, INCLUDING ANIMAL PARASITES. By ROBERT L. PITFIELD, M.D., of Philadelphia. With 4 plates, and 80 illustrations. Philadelphia, P. Blakiston's Son & Co. 1907.

This little book is designed to serve the needs of the medical student preparing for examination. It is a small book of pocket size, and necessarily leaves out the more minute details of cultures and technique which are found in the larger books on the subject. The subject of immunity is given in outline. Although the book is but a quiz compends, yet it contains much valuable information.

THE PRACTITIONER'S MEDICAL DICTIONARY. An Illustrated Dictionary of Medicine and Allied Subjects, Including all the Words and Phrases Generally Used in Medicine, with Their Proper Pronunciation, Derivation, and Definition. By George M. Gould, A.M., M.D. With 388 Illustrations. Octavo; xvi + 1043 pages. Flexible Leather, Gilt Edges, Rounded Corners, $5.00; with Thumb Index, $6.00, *net*. Philadelphia: P. Blakiston's Son & Co., Publishers, 1012 Walnut St.

The Practitioner's Medical Dictionary is based on recent medical literature, and contains, among other new features, the Basel Anatomical Nomenclature. It is very attractive in form and appearance, is complete in text and illustrations, and is suitable for ready reference. Dr. Gould's name is a guarantee of the quality of the book.

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UNREDUCED DISLOCATIONS OF THE SHOULDER.

By H. BEECKMAN DELATOUR, M.D.,

BROOKLYN-NEW YORK.

DISLOCATION of the shoulder under ordinary circumstances can be easily reduced, but occasionally manipulation, traction, etc., fail to reduce the bone, or may result in fracture of the humerus. Fracture of the humerus may have occurred at the time of injury. In either case, the occurrence of fracture renders any further efforts at reduction futile.

We will not discuss the various forms of dislocation nor the methods of reduction, but confine ourselves to the consideration of such cases as have remained unreduced for a period of no less than four weeks. We select this period, for it is generally conceded that cases which have existed longer than four or five weeks are usually best treated by operation. After the lapse of this time, adhesions usually have taken place and will prevent reduction by traction or manipulation. It is always fair in these cases to first try either the Kocher method or some form of traction before opertion is attempted. After the lapse of this time we must be careful not to use sufficient force to fracture the humerus or tear the nerves or blood vessels. Such accidents have happened in a number of instances.

If non-operative methods fail, should we always operate? This is a fair question and deserves a careful answer. From our experience in a number of cases we would say no. If the position of the bone is such that there is no pressure on the nerves, so that there is neither pain nor atrophy, if the movements of the arm are not entirely restricted, or the patient is advanced in years, it is usually better not to interfere.

In young people, in those suffering much pain, and in those depending on the usefulness of the arm as a means of livelihood, an attempt should be made to reduce the bone and, failing in this, a resection of the head of the humerus may be done.

The open operation is not without danger, for in the efforts to separate adhesions, the nerves or vessels may be divided and in one case reported, amputation became necessary as gangrene developed. Forcible manipulation, especially with any hard substance placed in the axilla, is just as, if not more, dangerous in this respect.

During the past five years, nine cases have come under our personal care, two were refused operation and seven were operated.

CASE I.—F., 50 years of age, a heavy man, was thrown from a car and sustained a dislocation of the shoulder (subclavicular). He was given an anesthetic twenty-four hours after the receipt of the injury and the reduction was apparently complete. During the next day, he was very restless and could not be kept in bed, and dressings became much deranged. The following day, on removal of the dressings, the bone was found to be in the position it was at the first examination. He was again put under ether and all efforts at reduction were unsuccessful. During the manipulations, crepitus could be distinctly felt. The fracture was probably the result of the manipulations. In this case operation was advised against, because the malposition gave no pain, there was a fair range of motion, the usefulness of the arm was not absolutely necessary and the patient was very fat, a bad subject for either anesthesia or operation. Three years have now elapsed and he has a very useful arm.

Case II.—A gentleman in poor general health, 60 years of age, fell and received an injury to his shoulder. He saw his family physician, who could not make a diagnosis owing to the swelling. He ordered a lotion and told the patient to return the next day. This he did not do. Eight weeks later, the physician while visiting another patient in the family inquired about the shoulder and much to his surprise, on examination, found a dislocation. There was considerable limitation of motion but no pain. Owing to the poor general condition of the patient, lack of pain, and his age, operation was not advised.

Of the cases operated, five have made excellent recoveries, two gave fair results.

Case III.—Mrs. L., aged 70 years, two months before coming under observation received a dislocation of the right shoulder (subcoracoid). This was not reduced. On examination she gave a history of continuous, severe pain, which continued to grow worse. Her general nervous system was broken down, she could not sleep, appetite was lost, and her health was failing. There was slight atrophy of the entire arm. Under general anesthesia, a very moderate attempt at reduction by manipulation was made. This failed, so an open arthrotomy was decided on and immediately performed.

The incision was carried from the tip of the acromion directly downward, separating the fibres of the deltoid. Immediately at the bottom of the incision was the glenoid fossa. This was easily cleared of adhesions. The anterior part of the deltoid was drawn forward by a retractor and the anterior surface of the head of humerus exposed and by means of scissors freed, at the same time strong outward rotation was maintained. As soon as the head of the bone was exposed the rotation was reversed and strong inward rotation maintained. Now the structures to the inner side and above were divided and the head of the bone was easily reduced and maintained in position. The incision was closed by interrupted silkworm gut sutures, except at the lower angle, where a small iodoform gauze drain was inserted. The relief from pain was immediate. The recovery was uneventful, the wound healing by primary union, the drain being removed on the third day. Passive motion was begun at the end of the second week. The hand which, before operation, was swollen to three times the normal was very slow in reducing and it was nearly three months, during which time massage and passive motion were being used, before the hand became normal. The function of the shoulder at this time was hardly restricted.

The result in this case was particularly gratifying because of the age of the patient, and the relief of the severe symptoms.

Case IV.—A man, about 40 years of age, operated at the Long Island College Hospital for a subcoracoid dislocation of five weeks' standing. In this case disability was the main feature, pain was slight and there was no swelling of the extremity. Operation was practically the same as in the previous case, except that at the various stages of the operation, strong traction was made on the bone by means of a hooked retractor. This was without result until all the attachments about the head were severed. Recovery in this case was entirely satisfactory and usefulness of the arm much earlier accomplished.

Cases IV and V were practically duplicates of Case III.

Case VI.—Male, 50 years, operated at St. John's Hospital. Subclavicular dislocation of eight weeks. Subject very fleshy. In this case there was complete loss of function with considerable pain. The operation was through an incision carried downward from the acromion, separating the fibres of the deltoid. This nicely exposed the glenoid, but the head of the humerus was so far forward and the muscular development so great, that it was necessary to carry an incision forward at right angles to the former. This divided the fibres of the anterior half of the deltoid. Through this incision the head of the bone was easily cleared and reduced. Healing was by primary union except at the point of drainage. This granulated very slowly and was not healed for about two months. In this case the result was not entirely satisfactory. The pain was entirely relieved and the arm could be moved either forward or backward, but could not be raised from the side owing to paralysis of the deltoid. This may have been due to injury to the circumflex nerve by the anterior incision.

Case VII.—Male, about 60 years of age, at the Long Island College Hospital. This case was similar to the previous one in manner of operation, but was complicated by an old fracture involving the greater tuberosity. Before applying at the college he had been in three hospitals where, under anesthesia, unsuccessful attempts at reduction had been made. The incision in this case was carried downward from the acromion and then an anterior extension made, but care was taken to keep this up near the clavicle. By means of first strong outward and then strong inward rotation, the structures attached to the head of the bone were severed and with little force the head of the bone was returned to the glenoid. This case progressed favorably, and the man was discharged at the end of four weeks with every indication that a perfectly useful arm would result. We have not been able to trace the case since.

Case VIII.—Female, 52 years. While intoxicated, fell down stairs and received a subcoracoid dislocation, which was not recognized. Five weeks later, she came into the L. I. C. H. and was operated after the manner above described. The wound was healed at the end of two weeks and she left for home. We were able to watch the case for about two months, but could do little toward improvement by passive motion or massage, because of the extremely intemperate habits of the woman. Before operation she suffered much pain. This was entirely relieved. The bone was in its proper position, but, probably, ankylosis of the shoulder, more or less complete, resulted because she would not use the arm. At the time she was last seen, all motions at the shoulder could be forced to about one-half the normal extent.

From these cases we would conclude that, where indicated, arthrotomy of the shoulder for old dislocation is a safe and fairly successful operation.

Stimson mentions necrosis of the head of the bone as a result of the necessary incisions to free it. This we have not seen. The results of this operation are much more satisfactory than excision of the head of the humerus as that leaves the long axis of the arm in a faulty position.

Operation.—The incision should run along the anterior border of the deltoid from the coracoid process downward and backward to the point of attachment of the deltoid to the humerus. This may be divided and the skin-flap containing the deltoid pulled forcibly outward, and the pectoralis major pulled inwards. Now we begin to divide the fibrous structures adherent to the head of the bone, remembering always the changed relations of the vessels and nerves and the possibilities of their being adherent to the head of the humerus. We have found scissors curved on the flat the most convenient for dividing the fibrous structures attached around the anatomical neck. Forcible rotation inward and then outward has been a valuable aid in bringing out the structures to be divided. Forcible extension also is a very valuable procedure to expose adhesions. The glenoid cavity and the capsule are next to be investigated. We have never found the remains of the capsule to be of any use, so have freely cut away such portions as were attached to the glenoid cavity. The glenoid cavity must be carefully cleaned so as to make a proper bed for the head of the humerus. Now the head of the bone should be replaced in position. In some long-standing cases it will be necessary to divide some of the muscular structures, but this should be avoided if possible. In dividing the muscles, we should proceed cautiously only dividing part of a muscle at a time and then manipulating. In this way it is frequently found sufficient to divide only a portion of a given muscle. The wound can usually be closed without drainage. Passive motion should be carefully commenced at about the end of a week, and from then on should be continued daily.

CAISSON DISEASE.

THE PATHOLOGICAL ANATOMY AND PATHOGENESIS.

WITH AN EXPERIMENTAL STUDY

By HARLOW BROOKS, M.D.,

NEW YORK.

Part II.

Pathogenesis.

The theories which have been advanced as explanatory of the symptoms of caisson disease are very numerous. They may be quite satisfactorily grouped, however, under these heads, which comprise all the more probable explanations for the symptomology and pathological anatomy.

(1) *The Theory of Exhaustion and Cold.*—This theory has been chiefly propounded by Barella, Lampardarios, Jaminet and Woodward. Triger also endorsed this explanation to a certain extent, assuming that the pain characteristic of the disease was rheumatic in origin and nature, and was the result of the marked fall of temperature which takes place during locking out or decompression. As is well known, when the air pressure is lowered in the lock a considerable amount of cold is generated, even in warm weather, and the atmosphere of the lock becomes thick with fog and intensely cold. Jaminet, Woodward and others assumed that the conditions following the physical exhaustion, incident to the work performed in the caisson, caused extreme prostration and pains rheumatic in type. They claimed that the work was more exhausting because of the more rapid tissue metabolism which they assumed to take place as a result of the increased absorption of oxygen due to the compression or concentration of the air. They concluded that the cold generated in the locking out process acted particularly harmfully on account of this unnaturally exhausted condition of the body. Though this theory has now been abandoned by practically everyone, still it may be well to state a few of the most conclusive arguments against it. In the first place, the disease is quite as apt to develop in men, such as foremen and overseers, who perform little or no physical work, and the warming artificially of the outgoing lock has not resulted in a decrease in the number of cases. Furthermore, the statements that tissue metabolism takes place more rapidly under the compressed air is largely based on

the premature conclusions of Jaminet that the urinary solids are markedly increased, and he assumed, entirely without proof, that this increase in solids represented an augmentation in nitrogenous waste products. No account was taken of the excretion by the bowel or skin, and the theory is not even founded on correct or demonstrated primary assumptions. Quite contrary to the claims of this theory, workmen assert that exertion in the compressed air tires them less than in ordinary atmospheric pressure. It has also been shown that active exercise immediately after locking out prevents or lessens the severity of the symptoms. This theory of exhaustion has received no confirmatory evidence from experimental sources, and may now be entirely discarded.

(2) *The Theory of Congestion and its Sequellae.*—This theory has received the support of some of the most eminent workers, among whom may be mentioned Pol and Wattelle, Guerard, Limousin and Andrew H. Smith. It is chiefly founded, apparently, on the gross pathological changes found. These, as has already been noted, are chiefly vascular in nature, congestion and hemorrhagic softening of the spinal cord and brain being the most constant lesions reported. Pol first showed that the danger of accident lay not in the increased pressure, but in the too rapid diminution of it. That Pol was quite correct in this statement is proven by the experiments by M. Hersent of Bordeaux (Eng. News, Vol. 34, p. 67), who showed that the effect of excessive pressure extending up to 76.8 lbs., produced symptoms different and distinct from those manifested in Caisson disease, and it is now universally admitted that the rapidity of decompression is the essential producing factor. Smith states, in addition, that the length of time of exposure to the pressure is also most important. This is doubtless true, but to a more limited degree. For example, in the Brooklyn gas tunnel several donkeys were kept under pressure for nearly two years, the pressure at times reaching as high at 52 lbs., which, I believe, is the record of high pressure under which work has actually been carried on. Some of these animals were removed from the air rapidly; all such suffered or died from Caisson disease, while those animals which were locked out in the same amount of time used for the men came out entirely free. (W. I. Ames, Eng. News, Vol. 41, p. 27.) This fact is of particular importance when we come to weigh the statement of Smith that the long exposure of the superficial vessels to the support of the increased external pressure weakens the tone of these trunks so that on return to atmospheric pressure the vessels are unable to sustain the normal pressure of the blood. While it is beyond question true that during compression, and also decompression, considerable unbalancing of the circulatory function takes place, still that this is sufficient to cause the anatomical changes found post mortem has not been satisfactorily demonstrated. Finally, I have shown by the accurate determination of the blood pressure in a considerable series of cases, before, during and after exposure to the increased atmosphere in the caisson, that but slight alteration in arterial pressure takes place, and, in so far as can be determined by our most accurate methods, the cardiac energy is neither augmented nor decreased. It is manifestly impossible that any considerable difference can exist for any great length of time between the pressure within the body and that without, for were this the case collapse of such cavities as the abdominal must necessarily follow, a fact very well illustrated by tears of the membrana tympanni where the Eustachian tube is imperforate. Catsario, from his experiments and observations, concludes that barometric pressure has no direct influence on the liquids of an organism, and that the equilibrium of pressure exists throughout entire masses of blood. I feel that we are now quite

safe in assuming that, after the tissues have become accustomed to the increased atmospheric pressure, say in twenty to forty minutes, no serious disturbance of the vascular distribution takes place, and we must look for some other explanation for the congestion and hemorrhage admittedly characteristic of Caisson disease.

(3) *The Gaseous Theory.*—Briefly, this theory assumes that the blood, or the blood and tissues of the body, take up an increased amount of air or gas, proportionate to the amount of external pressure which is liberated when the pressure is diminished. This theory in some of its forms has received the sanction of Bert, Boyle, Cassant, Catsario, Feltz, Francois, Hoppe, Seyler, von Leyden and many others. Bouchard attempted to explain the condition on the theory of compression of the intestinal gases, which, "acting like a great cup, draws the blood from the other parts of the body, producing local anemia." This fanciful explanation I think does not even require discussion. Most of the observers believe that the increased gaseous content was due to absorption to a balanced point in the abnormally dense surrounding air. Boyle showed, by rapidly exhausting the air about animals confined in the chamber of the air pump, that bubbles of gas formed in the blood and tissue, and that these animals died much more rapidly than when simply deprived of oxygen. Hoppe, from similar experiments, concluded that death was caused by pulmonary air embolus in these experiments, and that the offending gas in Caisson disease was largely or entirely oxygen. Bert, from experimental and clinical studies, accepted this doctrine, except that he assumed that the gas thus set free on decompression was nitrogen and not oxygen. In this relation we must consider Dalton's law, that the weight of a gas dissolved by any given fluid at a given temperature is directly proportionate to the pressure that the free gas exerts on the fluid. Assuming this to be equally true with the human body under compressed air, release from its excessive external pressure will naturally be followed by the liberation within the body of a bulk of air commensurate with the difference in pressure existing in the caisson, and in the external atmosphere. We should then expect bubbles of free air to be found within the tissue of the body under such circumstances.

The experiments of Smith, which tend to show that the quantity of air absorbed by the blood is quite insufficient to produce serious changes in the body, is invalidated, in my opinion, by the fact that he examined the blood alone, whereas in life all the tissues of the body are practically immersed in fluid. The earliest observations tending to substantiate this proposition are those of Heiberg (*La Gaz. Med. de Paris,* 1878), In Heiberg's case, as also in one of Pol's cases, the presence of gas blebs might be explained by post mortem infection with such an organism as the bacillus ærogenes capsulates. As already stated, however, Boyle, in 1670, produced bubbles of gas within the blood by rapid exhaustion of air in the air pump. Francois had suggested this possibility in 1860 after a study of his cases. Compliance with Dalton's law probably explains the variation in the rate of occurrence of Caisson disease, under the same pressure, but varying with barometric contions.

Bert, Catsario and many others have confirmed these observations experimentally and those of you who are familiar with the appearance of acute cases of Caisson disease, either in vivo or at early post mortem, I think are quite willing to accept the statement that such a liberation of free gas in the fluids of the body not only could but does exist without causing air embolus and death in every instance. This is readily explained by the fact that the human body can withstand large quantities of air or nontoxic gas so introduced, as shown by experiments of Magnin, Conly, Feltz, Petit, Demarquery and many others.

This statement has been rather recently substantiated by experiments in air embolus conducted by Crile. Therefore some explanation, aside from the mere presence of these gas bubbles within the body must be supplied. Ames and others above mentioned, attempted to explain this by the entirely untenable statement that carbonic dioxide poisoning results from the liberation of this gas and that this toxemia is really accountable for the symptoms of Caisson's disease.

Bert asserted that nitrogen poisoning resulted from the liberation of this gas while others considered the symptoms due to excessive oxygen liberation. The symptoms and lesions produced, however, correspond to none of these toxemias and the true solution was furnished by von Leyden in 1879. In the study of the spinal cord from a case of Caisson disease this scientist found minute lacerations of the substance associated with rupture of the small vessels, both of which changes he assumes to be simply mechanically due to the liberation of air bubbles in the tissues of the body. That lesions of this character, minute as they may be, are quite sufficient to cause death when they occur in the brain or cord, is, I think, beyond question, or that they may set up serious secondary inflammatory and degenerative processes in these organs, which might thus act, appears to me, entirely probable and, with a view to the demonstration of these lesions in Caisson disease, I have performed the following experiments.

Experiment I.—A strong flask containing 100 cm. of distilled water was taken unstoppered into the compressed air lock. The pressure was then raised to 31 lbs. when the previously opened bottle, was tightly corked. The pressure was then slowly released and had fallen to five pounds above atmospheric when the cork was forcibly driven from the bottle. This experiment was repeated several times with the same result.

Experiment II.—An egg and the body of a dead guinea pig were taken into the lock and the pressure raised to 31 lbs. They were then placed in separate basins of water. During decompression bubbles of air appeared on the surface of the guinea pig and egg, bubbling up through the water.

These simple experiments apparently demonstrate that under ordinary engineering pressures, sufficient air is released on decompression to indicate a considerable degree of absorption under pressure by water and by the tissues of an egg or the dead animal body.

Experiment A. — Three guinea pigs, each weighing about 285 gms., were selected. Pigs A′ and A″ were killed with chloroform at the same time and in precisely the same manner.

Pigs A and A′ were placed in the chamber of an air-pump, A′ being dead, and the air was exhausted rapidly, so that in two minutes the mercury column stood at 25 mm. It was maintained at this height for two minutes and then the air was admitted as rapidly as possible. After the first few strokes of the pump, pig A began to shows signs of distress, running rapidly about, and very shortly both animals began to show marked distension of the abdomen and to a lesser degree of the thorax as well. At the expiration of one and one-half minutes pig A threw himself on his back and with a few somewhat ophistonic contractures ceased to breathe. Meanwhile the distension of both animals was seen to be lessening rapidly. As the air was rapidly admitted, both pigs collapsed, to much less than their normal bulk, and on removing them from the receiver this condition still persisted.

Post mortem examination of pigs A and A′ showed no apparent difference in the bodies or viscera, there was superficial anemia in both, and the internal viscera were somewhat congested, no bubbles of air were found in any part of the bodies. The membranes of the brain showed a slight congestion, no greater in one than in the other.

Post mortem examination of pig A″, which had simply been killed with the chloroform showed a slightly less degree of internal congestion.

The brains and spinal cords (enclosed in vertabræ) of the three pigs were then placed in 5 per cent. formalin. The tissues remained in 5 per cent. formalin for two days, they were then transferred to 80 per cent. alcohol, in which they remained for eight hours when they were changed to 95 per cent. alcohol in which they were allowed to remain for twelve hours. Small segments of the tissue were then selected and transferred to absolute alcohol in which they stayed for two and one-half hours. Transferred to chloroform for two hours, to chloroform saturate with paraffin for two hours, and then to 52° paraffin for one hour.

Sections were then blocked, mounted and stained in the usual manner.

The brain from pig A shows quite marked dilatation of the blood and lymph passages, though for the greater part they are empty. The perilymph spaces are everywhere exaggerated, and in the white matter, notably in the internal capsule, apparently, there has been an exudate of lymphocytes and polynuclear leucocytes between the nerve fibrils. The blood vessels seem to be in a normal state as to the blood content. Air vesicles are present and no other evidence of tissue laceration than the widening of the perilymph spaces.

Sections of the spinal cord from pig A show no alterations in the gray matter. The blood vessels are not congested; on the contrary, they seem somewhat sparingly supplied with blood. The white matter shows quite frequent air vesicles, oval or circular in outline, and situated between nerve fibers, which have apparently been displaced. There is no apparent surrounding inflammatory reaction and, the greater number are apparently empty, but a few contain small quantities of a serous exudate. These lesions are most frequent in the upper lumbar portions of the cord and in the anterior columns, along the anterior median fissure particularly. That these changes are not artefacts, is apparently indicated by the fact that the nerve cells are not shrunken and stains by the Neisl method show normal cytoplasmic pictures. Furthermore, the epithelial lining of the ventricle of the cord is intact and shows cillia very distinctly.

Sections of the spinal cord of pig A′ show practically the same appearances as those seen in A, except that the distension of the perilymph spaces is less apparent.

Sections of the spinal cord of pig A″ show a normal structure throughout the cervical region, but in the lower dorsal and lumbar, the presence of air vesicles, particularly in the anterior columns is shown. The degree of these is apparently not so great as in pig A, namely, the vesicles present are not quite as large and possibly not quite as numerous. Sections stained by the Neisl method, as well as those prepared in the ordinary way, seem to indicate the absence of artefacts of any serious degree.

Sections of brain from pig A″ show a normal condition. The vessels are less congested than in the two previous specimens, and the distension mentioned in the perilymph spaces is not apparent. The sections were closely compared to the previous ones.

Sections of the spinal cord from pig A″ do not show the presence of air vesicles, described in A and A′. Areas are, of course, present where the tissue has undergone more or less mechanical distortion, but the presence of the large spaces, noted in the other cords, is wanting.

Experiment B. — Oct. 12. Three guniea pigs, each weighing 250 gms., were selected, all as much alike as possible. Pigs B and B″ were killed with chloroform in the same chamber at the same time.

Pigs B and B′ (B being dead) were placed in the receiver of the air-pump and the air slowly exhausted so that at the end of four minutes the mercury stood at 45 mm. The dead pig swelled somewhat, the living one considerably less, the breathing of the living animal became quite rapid and somewhat sterterous, after six minutes he fell on his side with the abdomen somewhat distended, still breathing rapidly. The column of mercury was kept at the same level for eight minutes, the animal remaining apparently in the same condition, but abdominal distension becoming less and less; finally, the air was admitted rapidly (15 seconds) and the animal still breathing rapidly was removed. After five minutes the animal began to attempt to rise, opened its eyes and at the end of ten minutes seemed to be perfectly normal.

About one hour later the pig began to breathe rapidly and evidently with considerable effort, later it improved, but four hours after was not yet entirely normal.

The tissues from pigs B and B″ were examined. There was a marked congestion apparent in the viscera of pig B, less so in pig B″. The brains and spinal cords were removed and placed in 5 per cent. formalin, the cord, as before, being still enclosed in the column. The living animal recovered completely, being perfectly normal on the next day.

The tissues from B and B″ remained in 5 per cent. formalin for forty-eight hours when they were removed to 80 per cent. alcohol, when the vertabræ were carefully cut away. After twelve hours they were transferred to 95 per cent. alcohol for six hours and to absolute alcohol (small blocks having been selected) four hours; to chloroform three hours; chloroform parafin two hours, and to 52° parafin for twelve hours. Good sections were obtained and were stained with hematoxelyn and eosin. Throughout the process the two groups of tissues were handled in precisely the same manner.

Sections from the brain of the control animal B″ show no shrinkage of the ganglion cells or other artefact. Blood vessels are moderately congested. The spinal cord from the same animal shows no change, with the exception of slight laceration caused by an improperly sharpened knife.

Brain from pig B shows no observable changes. Blood vessels are, for the most part, empty or contain but scant amounts of blood. Apparently they are contracted. There is no ganglion cell shrinkage and nothing to indicate artefact.

The spinal cord from the same animal appears to be perfectly normal. In the lumbar portion there are a few vesicles between the nerve fibers and the same is present in less degree in the lower dorsal.

Experiment C. — Oct. 15. Two guinea pigs were selected, C weighing 250 gms. and C′ 400 gms. Both were placed in the chamber of the air-pump and the air was quickly (one minute) exhausted to 20 mm., where it was held for 1.5 minutes. Both animals inflated rapidly, breathing became rapid, and after one-half minute both keeled over, still kicking and struggling somewhat. The air was then admitted rapidly and the pump was started to remove the CO_2 and to force in fresh air. After two minutes both pigs revived and were able to stand. The vent was then closed and the air again exhausted as before, but inflation of the bodies was much less apparent and the animals evidently suffered but very little, not losing station or consciousness. They were kept in this vacuum at 20 mm. for two minutes when the air was again rapidly admitted. Collapse of the bodies immediately took place, and on removing them from the chamber after about five minutes they walked about and appeared to be free from pain, but twitching of the extremities was present in slight degree and some time elapsed before they seemed in perfect mental equilibrium.

October 16. Same experiment repeated with the same result, the animals having been apparently in good condition in the meantime.

October 17. Same experiment, twitching more marked, lack of inflation at second aspiration marked. Recovery slower than on October 15 or 16.

October 18. Same experiment. Both animals much exhausted after last aspiration. Abdomens collapse on admitting air. Slight convulsive siezures on aspiration second time. Much exhausted but revived after removal from chamber.

October 19. Animals sick since October 18. Experiment repeated, both much exhausted, breathing very rapid and convulsive after removal from chamber. The animals were not seen on October 20. They were active on the night of October 19.

October 21. Animal C (smaller) found dead. Internal organs congested. Apparent rupture of the stomach, as from a tear. Post-mortem changes general but of moderate degree. Brain and cord removed and placed in 5 per cent. formalin, later carried through alcohol and so on as before. Animal C′ evidently sick, hair ruffled, squeals if handled, does not eat well.

October 23. Animal C′ still sick, killed by chloroform, no gross lesions of internal organs, tissues in 5 per cent. formalin and so on as before. The animal was apparently better on October 22 and 23, but still was not well and the actions of the rear extremities seemed faulty.

Specimens prepared for microscopic examination by the same method as before detailed and in association with organs of a control normal guinea pig.

Animal C shows dilation of the lymph spaces of the brain and cord. Occasional air vesicles are found, particularly in the neighborhood of the blood vessels but the specimens exhibit sufficient post-mortem changes to permit of the exclusion of artefacts.

The brain of animal C′ shows moderate congestion of the blood vessels. There is a slight leucocytic infiltration of the pia-arachnoid and some of the blood vessels show slight perivascular softening with small hemorrhages and edema. Recent changes are presented in the walls of some of the blood vessels. There is a general dilation of some of the perivascular lymph spaces throughout the brain.

The vascular changes are more pronounced in the cord than in the brain, particularly in the dorsal and lumbar levels. Open spaces, apparently representing air vesicles, are found from place to place and they are surrounded by areas of necrosed tissue. No ganglion cell changes are evident.

These experiments apparently show that when the air about either a living or dead animal is quickly exhausted, air vesicles associated with dilation of the lymph spaces, appear in the central nervous tissues, especially in the white matter of the spinal cord. Since these changes take place, though in slightly less degree in dead tissues, it is fair to assume that they are mechanical in nature. The absence of lesions in control animals, the tissues of which were prepared in precisely the same manner, excludes the possibility of artefacts. The lesions are essentially those of Caisson disease.

The symptoms produced by rapid exhaustion of the air are very similar to those of Caisson disease, though complicated in these cases by deficiency in oxygen and the presence of CO_2.

The swelling of the bodies, both of the living and dead animals, on lowering the pressure, and their collapse on return to normal, shows that the pressure within the body corresponds to, and varies with, that of the surrounding atmosphere.

Experiments indicate that most of the symptoms evinced on rapid exhaustion of the air are due, not to abstraction of the air per se, but to the effects of changes in the external and internal air pressure.

Frequent decompression from normal atmospheric pressure causes symptoms indicative of disease of the brain and spinal cord, and the appearance in these tissues of lesions of an inflammatory character, manifested by proliferation of the vessel wall, perivascular edema and necrosis, dilation of the lymph spaces, occasional minute hemorrhages, and the appearance of air vesicles, most numerous in the spinal cord. In brief, myelitis.

EXPERIMENT D.—October 21. Animal D, small sized rabbit. Animal D′, guinea pig; weight 250 gms.

Animals placed in air chamber and compressed air slowly admitted until at the end of eight minutes the pressure was 75 lbs. above atmospheric. Pressure maintained at this level for sixteen minutes. Air allowed to escape rapidly (from 75 to 0 lbs. in one minute).

Animals removed from chamber two minutes after release of pressure. Both were apparently in good condition, and showed no evidences of suffering or disturbance. They remained in this normal state for three minutes, when the rabbit D suddenly became excited, breathing became rapid, and in one minute convulsive tremors of the lower extremities began; after ten minutes there was paralysis of the hind extremities, more marked on the left.

Animal D′ began to breathe a little rapidly about five minutes after removal from the chamber, but apparently recovered shortly.

Four hours later animals had apparently fully recovered. Slight disability of the left rear extremity could be detected on careful examination of animal D, but otherwise he seemed normal.

Both animals killed by chloroform and placed in 5 per cent. formalin, transferred to alcohol, and tissue handled as before.

Rabbit D.—Brain, general dilation of perivascular lymph spaces. Blood vessels of brain generally congested. Occasional occurrence of air vesicles, particularly in the white matter of the brain, seen most distinctly where longtitudinal sections of fibres are presented (artefacts excluded by control). Marked dilation of perivascular lymph spaces. A few of these vesicles are apparently filled with lymph and a fine detritus. Others of them show a probable relationship to the blood vessels, and still others are surrounded by edematous and slightly lacerated tissue.

Guinea pig D′.—Leucocytic infiltration, with a hemorrhage per diapedisis and about small areas of necrosis and edema, in some of the cortical and meningeal trunks.

Spinal Cord.—Vascular changes similar to those indicated in the brain. Occasional air vesicles are seen, especially in longitudinal section of the fibres. Marked dilation of the perivascular lymph spaces. The pericellular spaces in some instances show enlargement from air vesicles.

Experiment E.—Animal E, a small-sized rabbit: animal E′, guinea pig of 250 gms. weight. Animals placed in chamber and air slowly admitted (six minutes) until pressure reached 55 pounds above atmospheric. Maintained at 55 pounds for thirty minutes. Air released in one minute. Animals emerged from chamber apparently normal. After five minutes the rabbit began to breathe rapidly and convulsive tremors of the body were inaugurated, slight paralysis of rear extremities resulted. The guinea pig was apparently unaffected. Animals killed after fifteen minutes by chloroform. No congestion of superficial or internal organs apparent. No gross lesions of spinal cord or brain. Tissues placed in formalin 5 per cent. and treated as before.

Summary of Pathological Findings in the Brain and Cord.

Marked congestion of the vessels with occasional hemorrhages of minute size. Dilation of the lymph spaces. Air vesicles in both brain and spinal cord as in specimens D, E, C, but less numerous and smaller.

Experiment F.—Nov. 12. Two rabbits, F and F′, together with two guinea pigs, F and F′, were placed in the air chamber. Pressure was admitted from 0 to 75 pounds in four minutes; this was slowly diminished, due to leakage to 60 pounds in ten minutes.

Pressure released in thirty seconds. Animals removed from chamber in one minute; they were found apparently normal, except that the urine had been passed. After three minutes the animals began to show signs of distress, rapid respiration, trembling and staggering gait. At the end of ten minutes they had apparently recovered. The vessels of the ears of the rabbits were of about normal size, at first rather congested.

At the end of ten minutes the animals were replaced in the chamber and the pressure was raised to 60 pounds in one and one-half minutes. They were kept at this pressure for fifteen minutes and locking out was completed in thirty seconds, the animals being exposed one and one-half minutes.

When first removed they showed no

changes, but almost immediately the two guinea pigs began to show rapid twitching of the extremities, rapid respiration, and, finally, paralysis of the rear extremities. The rabbits a little later showed similar symptoms, but of more marked degree; recovery began in fifteen minutes and three hours later all appeared comparatively well, except that the hair was rough and handling was evidently painful, and the tendon reflexes were greatly increased. The condition of the ear vessels was closely observed. Immediately after removal was a congestion of the veins; this gave way to an arterial hyperemia, but after five minutes the vessels seemed to be normal.

November 13. To-day all the animals were found in apparently normal condition. The tendon jerks of the rabbits were somewhat increased, but otherwise they seemed natural. Ate normally.

November 14. Animals in normal state. Rabbit F and guinea pig F transferred to experiment G. Rabbit F′ transferred to experiment H.

EXPERIMENT G. Nov. 12.—A large rabbit, F, and a medium-sized guinea pig, were placed in the air-chamber and compressed air admitted up to 45 lbs. 2 minutes being occupied in locking in. The pressure was maintained at this point for two hours. Locking out was accomplished in 30 seconds, and the animals were exposed in 1.5 minutes. The guinea pig gave a few convulsive twitches, voided the urine and died immediately, the abdomen inflating considerably. The rabbit was very cold, and soon began to have a swaying gait, terminating in partial paralysis of the rear extremities. He had rapid breathing, shook and voided urine and feces. The ears were very cold and were almost bloodless, remaining in this condition for 10 minutes, when he began to show signs of recovery, finally began to breathe regularly, and gradually regained the power to walk some, though at the end of 15 minutes the gait was still very uncertain. He was then returned to the cage with the other animals.

At the post-mortem on the guinea pig the superficial vessels were found anemic, while the internal viscera were congested. The cord and brain were removed and placed in 5 per cent. formalin, neither were congested though the liver, kidneys and spleen were.

The tissues were transferred to 80 per cent. alcohol and later treated after the usual manner for paraffin sections.

November 14. Rabbit still shows marked increase of knee jerks but eats well, no paralysis evident.

Historical Summary.—The brain shows numerous very large-sized air vesicles, apparently representing the greatly distended lymphatics and perivascular lymph spaces. Some of the vessels showed proliferation of the endothelial lining. No ganglion cell changes were evident. In the cord the dilation of the perilymphatic spaces was especially marked about the ganglion cells of the anterior horns.

EXPERIMENT H.—Nov. 15. Rabbit F′ and a normal rabbit H′, selected as of about the same size and weight. Two animals placed in the air chamber. Air admitted fairly rapidly so that at the end of three minutes the pressure stood at 70 lbs. Communication with the air tank cut off, leakage slight but pressure fell slightly and at the end of fifteen minutes the communication with the tank was again introduced to permit dilution of CO_2, this process was repeated 4 times during the hour and the pressure was maintained almost constantly at 70 lbs.

After an hour the air was permitted to escape rapidly so that the pressure fell in 30 seconds from 70 lbs. to 0. Animals removed from chamber in one minute from beginning of locking out. Animals found in condition of collapse, bodies somewhat inflated, skin cold, large quantities of urine voided, temperature of chamber low. On removal from the chamber the ear vessels were very anemic, almost bloodless and the animals showed convulsive seizures. Not paralyzed, tremors, evident dizziness and ataxia, after five minutes complete paralysis of the rear extremities had taken place, and a little later paralysis of the fore extremities. Animals lay helpless. Breathing very rapid and shallow. Heart action very rapid and irregular.

On first removal the ear vessels were very anemic, this was soon replaced by a very marked congestion which lasted but a few minutes, being replaced again by a very marked anemia with coldness. These vascular changes continued throughout the time, forty-five minutes, in which the animals were closely observed, the changes from extreme anemia was more marked in Rabbit F′ though they were also very marked in H. The waves of vascular alteration were not the same in the two animals but each phase lasted usually from a few seconds to two minutes.

The condition of absolute paralysis passed somewhat and animals began to be able to use fore extremities. It remained complete in the rear extremities and the mental condition apparently became steadily worse. Both animals showed a very cold skin, were unable to hold the head up, showed frequent convulsive seizures with spasms of twitching.

At the end of forty-five minutes from locking out animal H was killed by a few whiffs of chloroform, as it was seen that recovery was impossible, respiration having become irregular, great vascular alterations still persisted and the heart action was rapid. As soon as possible the spinal cord, together with the brain, was removed. The internal viscera were considerably congested, no air emboli evident and the dural vessels of the cord were especially congested, very markedly, but though there were apparently areas of softening in the spinal cord, no spinal hemorrhages were macroscopically demonstrated. The vessels of the brain were moderately congested and no areas of softening were there evident.

The tissues were immediately placed in 5 per cent. formalin and were subsequently handled after the usual method.

One hour after locking out, animal F′ was found to be dying; as soon as respiration had ceased the tissues were removed after the usual method, and were found to show exactly the same conditions shown in animal H. Tissues of this animal were handled in the same manner as those of F′

No provisions were made in this experiment for the disposition of CO_2, except that the communication with the entire tank of compressed air was frequently opened. We also found that animal G recovered so I do not think that the amount of CO_2 influenced the result to any appreciable degree.

EXPERIMENT I.—November 25th. Rabbit F, together with a smaller rabbit I, were placed in the compressed air chamber and pressure increased from 0 to 60 pounds in one minute. The pressure was maintained at that grade for forty-five minutes, frequent communication with the entire tank being given for dilution and CO_2, further an abundant supply of fluid N^aOH was placed in the chamber. Air was released so that in thirty seconds the pressure had fallen to 0 and one minute was occupied in releasing the animals. The animals were removed from the chamber in a dazed condition, and in a few minutes paralysis of the extremities and of the back were marked; breathing rapid. The ears became rythmically congested and anemic, the animals were very much distressed and at times spasmodic trembles of the entire body took place. These symptoms continued for three hours, becoming slowly less marked and finally disappearing on the next day, though the animals were not well. The large animal showed the less pronounced symptoms.

November 27th. — The animals were apparently well and the experiment was repeated in all details the same, except that the maximum pressure. was forty-five pounds. Symptoms were less marked and the paralysis was most pronounced in the fore extremities. Recovery was more rapid than before, but both animals were profoundly affected.

December 2d.—Rabbits F and I were placed in the chamber and pressure was admitted from 0 to 90 pounds in 6 minutes. The animals were left at this pressure for 30 minutes. The pressure was then gradually diminished by allowing the slow escape of the air so that in ten minutes the pressure had decreased to 0. The animals emerged from the chamber apparently undisturbed and showed no symptoms either then or later which would tend to indicate that the pressure had been at all deleterious.

December 5th.—Animals had remained in a normal condition, both had gained weight. Both animals placed in the chamber, pressure slowly admitted so that at the end of six minutes it had arisen from 0 to 110 pounds.

Pressure was maintained at this point for sixty minutes.

Air was permitted to escape very rapidly, so that in thirty seconds pressure had become 0. The chamber was opened in sixty seconds from the end of locking out. The animals stepped from the chamber as though in normal condition, except that the breathing was not as slow or regular as natural. They walked about the room, appearing to be somewhat excited, but no paralysis was present. At the expiration of three minutes, almost simultaneously the animals became very much excited, the ears became pale (previous to this they had alternately paled and flushed), but this was much less marked than shown in the previous experiment. They became excited, the pupils distended, the eyes bulged from the head, and the head was thrown rythmically from side to side. The neck muscles stiffened, spasmodic twitchings of the rear extremities came on, followed by paralysis, apparently beginning from behind, extending forward; paralysis finally involved all the extremities, and the animals fell to the floor. The action of the hearts was irregular and weak. The smaller animal succumbed first, and was dead in five minutes from the beginning of serious symptoms, while the other and larger animal lived slightly longer, and died suddenly, giving forth cries.

As soon as the animals were certainly dead, the cavities were opened, and it was at once noted that the vessels of the omentum and messentery were much congested, in the smaller animal they contained numerous bubbles of air, while the subcutaneous tissues were also emphysematous to a moderate degree. The sub-peritoneal fat, particularly that about the kidneys, was riddled with gas blebs, and the peritoneal coat of the gut in many places was raised into tiny blebs. The entire gut was considerably distended, but no ruptures had taken place. The lungs were very emphysematous, particularly in the smaller animal. The cord and brain showed no gross lesions. The liver was congested in both cases, but no emphysema of this organ was evident. There can be no doubt as to the presence of air bubbles in the tissues and blood vessels, and when the trunks were cut the blood which escaped from them was literally red foam.

The brain and spinal cords were removed in the usual manner and at once placed in 5 per cent. formalin where they remained for twenty-four hours, when they were gradually removed to 80 per cent. alcohol. They remained in this for twenty-four hours, the spinal vertebrae were then removed and after having been again placed in 80 per cent. alcohol the cords and brain were segmented and portions chosen for examination, then transferred to 95 per cent. alcohol for eighteen hours, when they were placed in absolute alcohol for three hours, transferred to chloroform for six hours, chloroform paraffin (saturate) for eighteen hours, 52 degrees paraffin for three hours. Sectioned.

When these sections were blocked it was found very difficult to remove the bubbles from the specimens which behaved exactly as specimens of lung tissue when handled in the same manner. For this reason the tissues were reblocked several times, the result being, however, bad in each case and the sections obtained were not as smoothly cut as is usually the case.

For this reason, and because of the lesions found in these specimens, I was led to think of possible errors of technic which had given rise to very pronounced artefacts, I similarly carried other blocks of the same tissue through collodion, using the greatest care to avoid artefacts, so that the tissues were allowed to remain in absolute alcohol and in thin collodion but a very short time. As the lesions found in both sets of specimens were identical, I am justified in the conclusion that the changes were not brought about by faulty technic in their preparation.

Summary of Pathological Histology.—Rabbit H. Brain. Marked dilation of the lymph spaces, A few microscopic areas of hemorrhage in meningeal and cortical vessels. Very marked dilation of the perivascular and pericellular lymph spaces. Many of the vessels are markedly contracted. No ganglion cell changes are present.

Spinal Cord. Perivascular and vascular changes like those just described in the brain are present in the spinal cord. The changes are apparently most marked in the dorsal levels.

Rabbit F. Changes exactly like those detailed in rabbit H, except that in addition to dilation of the lymph spaces and minute hemorrhages into the air vesicles, many of the smaller trunks were surrounded by leucocytic infiltration, by more marked edematous and necrotic changes in the tissue and the endothelium of certain of the vessels shows marked proliferation.

Rabbit I. Brain. Changes noted in the other specimens are present here but even in more marked degree, in addition to interstitial hyperplasia about certain of the vessels.

Rabbit IF shows also like changes but with still more marked proliferative and interstitial changes in the perivascular tissues. The air vesicles are very large and numerous.

Experiment J.—Dec. 2d. A medium-sized rabbit was placed in the air chamber, the usual precautions being taken to prevent CO_2 poisoning. Pressure was admitted in six minutes from 0 to 100 lbs., which at times rose to 110 lbs. The pressure was maintained for forty-five minutes at the end of which time the air was slowly allowed to escape, so that at the end of ten minutes, locking out time, the pressure was 0. The animal emerged from the chamber apparently unaffected and continued in normal condition.

Conclusions.—The conditions existing in the production of true Caisson disease have been closely simulated in my series of compression experiments, with, however, the omission of physical exercise. The fact that the resulting state closely resembles true Caisson disease, then indicates that exertion or physical exhaustion is at least an unessential factor in its production.

In all the hyperpressure experiments the stage of compression or locking in was productive of no serious symptoms or lesions, even when the pressure extended up to the enormous figure of 110 lbs. above atmospheric (Experiments I and J). In human beings however, it is doubtless true that these excessive pressures can not be endured, as demonstrated abundantly in practical work as well as by the experiments of Hersent, only one of whose subjects was able to sustain the pressure of 76.8 lbs.

The length of time under pressure appears to be an important factor in the production of the disease, as first stated by Smith and indicated especially by experiment G. This is probably accounted for by the more complete absorption of the compressed air and consequently the greater difficulty in liberation on decompresion.

Serious or fatal symptoms appear only on too rapid decompression and this appears to be the one absolutely essential factor in the production of the lesions. This is especially indicated by comparison with the exhaustion experiments, A, B and C. This observation is in thorough accord with the best clinical statements in regard to this important fact.

The condition of the air of the compression chamber appears to furnish no essential agents toward the production of the disease. In practice this can be but partly true, for unquestionably the presence of CO_2 in excesive amounts or of such foreign materials as illuminating gas, fire damp and soot, as found in the early caisson work, in the first use of the diving bell, and of course where free oxygen is deficient, show absolutely that such qualities cause secondary depressing conditions which cannot fail to be of great bearing.

The essential anatomical lesions found in both the acute, true and experimental disease are identical. They consist of dilation of the lymph channels, the presence of free air vesicles or lacerations resulting from the liberation of air in the vessels and in the soft tissues, notably in the spinal cord and brain and of capillary hemorrhages. Hemorrhage per rectum has never to my knowledge been reported in Caisson disease.

Exactly similar changes, varying only in degree, are produced by rapid exhaustion of the air, thus excluding the theory of gas toxemia. My experiments (A, B and C) in this research thus substantiate those performed by Boyle in 1670.

These lesions are produced alike in the living and dead body, they are therefore probably mechanical and not pathological in origin. (Experiments A, B and C).

Air under compression is absorbed by inert fluids (Experiment I), by certain inert tissues (Experiment 2), and by dead and living animal tissues (Experiments A to J), and the amount of absorbtion depends largely on the degree of compression, according to Dalton's law. On release of the pressure, air is liberated from these substaces in quantity according to the degree of previous absorption (Experiments I to J).

When rapid liberation takes place in dead or living animal bodies it causes the dilation of the lymph passages, the rupture of capillaries and the production of tissue laceration by the escaping air bubbles.

Frequent repetition of these lesions in the living tissues causes endothelial and interstitial proliferation with tissue necrosis in and about the diseased vessels and eventual secondary inflammatory changes (Experiments C, H and I).

The symptoms of true Caisson disease admit of the above explanation and the paralysis and symptoms of spinal and cerebral disease are produced in this manner. They are followed in sub-acute or chronic cases by secondary degenerative and inflammatory lesions which may be grouped as myelitis (Autopsy reports).

Finally, from the pathology of true and experimental Caisson disease, we are justified in concluding that the essential productive factor is the rapid liberation of air from the fluids and tissues of the body, when decompresion is allowed to take place too rapidly. This liberation of bubbles of air causes laceration of the soft tissues, dilation of the lymph spaces and capillary hemorrhage.

THE TREATMENT OF ACUTE OSTEOMYELITIS.

By WALTER C. WOOD,

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THESE cases of acute osteomyelitis come under our care with a moderate degree of frequency and present many interesting features. Too often, however, are they exasperatingly slow in reaching a state of complete and permanent cure; and too often, I may say without fear of contradiction, almost without exception, are they subjected to repeated surgical operations. This is annoying to the patient and damaging to the reputation of the surgeon.

The usual course of these cases is about as follows:

The patient is apt to be a child, or young adult, with perhaps some local and minor septic process somewhere in the body. Then without known cause, or after the indefinite history of so-called "exposure to cold," the patient has pain in a limb, inability to use the same and general constitutional septic symptoms, often quite severe. From the viewpoint of the general practitioner, these are apt to overshadow the local picture and lead to a line of internal medication for days with possibly some local application to the limb. After a time a swelling appears, with enough redness and oedema to demand an incision which discloses pus beneath the periosteum and results in a partial relief of the general septic condition. Yet the patient does not entirely recover from the sepsis and the wound continues to discharge. Then it is realized that the bone is at fault and a series of operations follow, at which more or less bone is removed, until at last the entire shaft is taken away and the involucrum which has developed takes the place of the original bone. We have all seen such cases last a year or more, and others that have been shortened by more radical surgery at some time in their course.

The two points to which I wish to call attention are:

First: The extreme infrequency of a septic periostitis without an underlying osteomyelitis.

Second: The possibility and often the advisability of removing the entire shaft of a bone without waiting for the involucrum to form and the sequestra to be differentiated.

Concerning the frequency of a septic periostitis without a primary underlying septic osteomyelitis, there is some divergence of opinion.

It undoubtedly does occur under the following conditions: First, an open wound; Second, a fibrous periostitis due to direct trauma with a subsequent infection through an acaccompanying abrasion; Third, as part of a general and widespread pyemia.

These cases are not open to discussion. But apart from these conditions we are confronted by many cases where, on opening an acute septic periostitis in its early stages before evident disease of the underlying bone, it is important to decide whether to open the bone that may be healthy and thus infect the medullary cavity, or to refrain from opening the bone and permit the infection, if present, to continue its course unchecked until evident disease is manifest. If the medullary cavity is diseased, delay produces long continued disability and often permanent damage to the function of the limb.

Our action must be founded on a knowledge of the true pathology.

W. W. Cheyne, of London, writes that "Acute suppurative periostitis is extremely rare; but if in a case where the symptoms have lasted for only two or three days it is found on cutting through the periosteum that a large abscess is present it is possible that the disease is limited to the subperiosteal tissue and it may be well to remain content, at any rate for twenty-four hours, with free incision through the periosteum." He then goes on to say that if grave symptoms continue after twenty-four hours, the patient should be again anesthetized and the medulla opened. (In passing one can note the repugnance of our independent American laity to secondary operations.)

Senn writes: "Primary suppuration in bone begins in the medullary cavity." "Primary suppurative periostitis is an exceedingly rare affection."

Tillman, in his Surgical Pathology, does not consider suppurative periostitis as an entity, but combines it with suppurative osteomyelitis, but says it is difficult to decide when to open the bone.

Our American Text-Book of Surgery, under the title of Acute Osteoperiostitis, after stating that "This title includes the cases usually spoken of as periostitis," and after giving a rather lengthy description of the pathology, symptoms and differential diagnosis, under the head of treatment, advises rest, constitutional medication, light diet and abundance of water, elevation of the part, lead and opium solutions, etc., with careful examination each day, and at the first appearance of fluctuation, an incision—with exploration of the bone with a probe to find carious bone or sequestra. Such a description will certainly give the student a different idea of the disease than does the teaching of Cheyne or Senn—but the "Text-Book" produces confusion by the concluding sentence: "If the abscess is not opened promptly it spreads, and the amount of destruction is much greater than it need be."

Wharton & Curtis, Hektoen, the Pathologist, Macdonald and others treat acute septic periostitis as a disease separate from medullary sepsis, while Brewer, Walsham and De Costa take the position of Senn, although not in his clear-cut words; and Lilienthal says that in any event it is necessary that the medullary canal should be opened or the operation will be but half done, and the sepsis will not be checked.

Other writers that I have examined do not express themselves definitely on the point at issue.

My own view on this subject has changed. Formerly, in these cases, where there was a septic periostitis without an external cause, I opened the bone only when it showed evident disease on inspection, or when the symptoms, local and general, were out of proportion to the amount of sepsis beneath the periosteum. After doing many secondary operations, a week or more following the incision of the periosteum, and always finding that the extent of bone disease exceeded my expectations, I have for some years practiced opening the medulla whenever the pus has been beneath the periosteum, and I have yet to find a case where the medulla was not the seat of sepsis. Even following this plan, I have occasionally been at fault in not opening the bone, because there was no periostitis seen at the point of incision; but only a cellulitis, while the subsequent progress of the case has shown that the collection of pus that was opened was secondary to a bone and periosteal sepsis at a distant part of the limb. Even the well known sign of pain elicited by a blow on the foot in a tibial case I have seen to fail in a recent patient who never complained, although the tibia was in a state of acute osteomyelitis. Therefore I am ready to advise early exploration of the bone as a routine measure except under the three conditions excluded from this discussion.

In reference to the second point, viz.: The advisability of removing an entire shaft as soon as it is evidently diseased beyond recovery without waiting for an involucrum to form, the question is to be decided, in great part at least, according to whether the femur or the humerus is the bone under consideration, or whether it is the fibula, tibia, radius or ulna. I have never ventured to remove the femoral or the humeral shaft before the formation of an involucrum, because it seemed that no mechanical device could be trusted to prevent undue shortening and angular deformity. But on several occasions, I have removed the entire shaft of the tibia, fibula, ulna, or a good portion of the radius, and have trusted successfully to the parallel healthy bone to prevent deformity. When the periosteum is relieved of the presence of the diseased shaft and thus the septic process practically eliminated, the formation of new bone goes on with greater speed and certainty and the bone produced more nearly resembles in form the original bone than when it is formed around the old shaft. I do not wish to be misunderstood. It is not as a routine measure in all cases of osteomyelitis that I desire to advocate it. It should not be done at the time of the primary drainage, if this is done early, for then it can seldom be determined whether the shaft is in fact diseased beyond repair. I think we have all seen an occasional case of undoubted acute infectious osteomyelitis where after a very early diagnosis and prompt drainage of the medullary cavity there has been no necrosis at all. I recall one case in the service of the late Dr. Fowler at the Brooklyn Hospital, which I think he reported to this Society, where both tibia were involved and were promptly drained with complete relief of marked general septic symptoms and were never the site of necrosis. This ideal result is more apt to be achieved, or in the average case the amount of necrosis is apt to be restricted, if, according to Nichols of Boston, the medullary cavity is not curetted. Curettage and disturbance of the marrow, he says, causes extensive destruction of the endosteum which, if left alone, has power of regeneration sufficient to prevent in early cases, and to lessen in many cases the extent of the necrosis of the shaft. Yet in the average case that comes to the surgeon for operation, the pus has already spread between the periosteum and the cortical layer, has passed along the medullary canal from the epiphysis, where it usually originates, to the one at the other extremity of the shaft, and for a week or more often for a longer time, all nutrition of the bone has been withheld, with the usual result of an ultimate sequestrum involving the greater portion or even the entire shaft.

I recently operated on a boy where, twenty-eight days after superficial drainage, on incision of the periosteum for the length of the tibia, I passed a finger around the shaft beneath the periosteum and lifted out the shaft which was lying free in its bed of pus.

In two patients I have had an opportunity to observe in a most convincing way the advantage of a removal of the entire shaft, while another bone in the same patient was operated upon by the more established method.

The first case was in 1894, at St. Mary's Hospital. A boy about six years old had this disease of several months duration in his right tibia, which had been drained, and an involucrum had formed, and also the same disease of shorter duration in his left fibula. The tibia was operated upon by the usual method of a free removal of the involucrum and extraction of the sequestra, and the resulting slow but ultimately successful healing. The fibula I removed in one piece, including its articulations. The prompt healing of the fibula wound was less surprising even than the reproduction of a new fibula which at the end of a year in its lower two-thirds at least could not be distinguished from a normal one.

The second case was a girl of six years, who was burned on the buttock and thighs while jumping through an election-day bonfire in November, 1902. The burns were not entirely healed at the end of six months, when she developed a septic process in the humerus, including the shoulder joint, and a month later the same disease in the ulna, including the elbow joint. I operated on this child five times in the space of two years. The first time I drained the shoulder and incised the periosteum over half of the humerus. Her weak condition prevented any surgery on the bone, but there was a spontaneous opening into the medulla found at the first operation. I was intending to send her to the hospital for the usual operation on the humerus, when the septic process started in the elbow joint and ulna, which I then drained at her home. In September, 1903, I removed the ulna, with the exception of the olecranon, and chiseled out part of the involucrum from the lower half of the humerus. The ulna healed promptly and gave no more trouble. The 26th of October I operated again on the humerus, attacking the upper half. In May, 1904, I again operated on the humerus, removing some of the involucrum that had become necrotic. Not until December, 1905, were all the sinuses healed. After such an object lesson, one would not hesitate to remove the entire shaft before an involucrum was formed, if one could rest assured in the reproductive power of the periosteum. Senn says that the fear that this reproduction will not occur is not supported by facts, for where the periosteum and the epiphysis remain, a good, if not a perfect, substitute is reproduced. And to substantiate his statement, he quotes eleven writers who have each reported cases where almost complete reproduction has followed the removal of the entire shaft.

Walsham states that if the osteogenetic layer of periosteum has not been destroyed, the whole diaphysis may be restored.

Nichols writes as follows: "In the subacute stage it is desirable to remove the necrotic shaft completely or partially. At this time the periosteum, either before or after the beginning of periosteal ossification, has the power of regenerating a completely or partially removed shaft." He then describes his method of disinfecting the periosteal sack, stitching it together and obtaining a quick healing by approximately primary union. I have not attempted to follow him to that extent, for it has not seemed necessary or possible to so disinfect a septic cavity, nor can I see any marked advantage to compensate for the risk of enclosing sepsis. It is like the attempt to secure primary union after excision of a rectal fistula, which in my hands has not been satisfactory, and has led to imperfect healing.

I have yet to see the periosteum fail to do its full duty, and firmly believe that an early removal of the septic shaft leaves it in better condition for regenerating the new bone.

Another advantage to be mentioned is at times a factor of great weight. By following this plan, the patient's system is relieved of its septic burden at a much earlier time than if we wait for an involucrum formation. Thus the patient's resisting power sooner regains its normal standard, with a less risk of distant septic complication or tuberculosis following.

In reference to the single bones, humerus or femur, while the method advocated is not applicable, I believe there is advantage in removing sequestrum at an earlier date than is the usual custom—with the use of orthopedic braces to protect a weak involucrum.

REVIEW OF THE ENGLISH PEDIATRIC LITERATURE FOR 1906.

By WILLIAM H. WOGLOM, M. D.,

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Infant Feeding.

IT seems eminently proper to begin our review of the year's work with a description of the advances that have been made in the study of the eternal question—infant feeding.

Fry, of Montreal, has contributed toward the solution of this problem an important paper on split proteid feeding.

It will be remembered that in cow's milk the relation of caseinogen to lactalbumin is as 5½ is to 1. Whereas, in mother's milk the relation of caseinogen to lactalbumin is as 1 is to 2. Now, the proteid content of whey is, for practical clinical purposes, made up entirely of lactalbumin. Thus, in the addition of whey to cow's milk, we become possessed of a ready method of increasing the proportion of lactalbumin in our feeding mixture. But, unfortunately, even the richest whey contains much less lactalbumin than does woman's milk, and after other necessary constituents have been added to the whey, the lactalbumin content has fallen to about one-half that of mother's milk. This obstacle Fry has overcome by evaporating the whey to a powder, which analysis shows to contain 13.5 per cent. of proteid, in contrast to the 0.88 per cent. proteid content of the original whey. The whey which Fry used for his experiments was rather rich in proteids, and it is very likely that 0.60 rather than 0.88 would represent the proteid percentage of the average whey. By dissolving this powder in water and adding the solution to cow's milk, Fry has obtained a feeding mixture in which fat, sugar, casein and lactalbumin are present in a proportion almost identical with that which they bear to each other in mother's milk.

The feeding problem has been attacked from another side by the addition of sodium citrate to the feeding mixtures.

The chemistry of this procedure is still under discussion. It is thought by some that the sodium citrate decalcifies the casein, forming from the calcium-casein a sodium-casein, and calcium citrate. The sodium-casein is thought to be invulnerable to the attacks of the digestive ferment, and the curd is said to be produced only by the action of the hydrochloric acid of the gastric juice. The calcium citrate is believed by these observers to be dissolved by the influence of the sodium-casein.

Other observers contend that if sodium citrate does act by precipitating the calcium salts, then these should be recoverable from the curd. Experiments were made which showed the curd to contain only a trace of the calcium salts, while by far the greater percentage of them was recoverable from the whey. Thus they have demonstrated, they consider, that sodium citrate does not *precipitate,* but *dissolves* the calcium salts, suspending them in such a way that they are unable to exert their influence in promoting the coagulation of the casein.

Still others, having demonstrated that the calcium-casein is not precipitated, with the formation of the insoluble calcium citrate and the more flocculent sodium-casein, look about for the chemical combination most likely to occur. When a solution of sodium citrate is brought into contact with hydrochloric acid, they say, the stronger inorganic acid displaces the weaker organic acid, with the formation of free sodium chloride and citric acid. Thus they consider that the favorable results obtained by the use of sodium citrate can be due only to the sodium chloride, which must then possess more valuable physical, chemical and therapeutic properties in the digestion of the proteids of cow's milk than have hitherto been attributed to it. Whether the other product of this reaction—the free citric acid—has any more important therapeutic value than the hydrochloric acid of the gastric juice (stimulated in production by the sodium chloride) would seem to be very doubtful.

But, whatever the laboratory may show, certain it is that the dispensary has shown sodium citrate to be a most valuable addition to our rather limited resources. Infants will tolerate, under its administration, a much larger proportion of milk in their feeding mixtures without evidences of gastric disturbance, or the appearance of curds in the stools.

The method of its employment is as follows: An aqueous solution of sodium citrate is made up, which shall contain one to five grains to the drachm. Enough of this solution is added to represent 1, 2, 3 or even 5 grains in each ounce of milk in the mixture. Mark well that the sodium citrate is added with reference—not to the number of ounces of feeding mixture, but to the number of ounces of milk in this mixture. The sodium citrate should be added just before the food is given to the baby. The vomiting of curds, or their appearance in the stools, is considered to be an indication for increasing the sodium citrate.

Forty years ago, Evans, of Dublin, suggested the use of stout in marasmus. The subject has been reviewed this year by an English observer, W. Langford Symes, who believes that in appropriate cases its use has been attended by good results.

Stout contains carbohydrates in a thoroughly dextrinized form, and in addition a small quantity of alcohol—one ounce of stout being practically the alcoholic equivalent of one drachm of brandy.

Symes believes that it should be given only to those infants who will apparently take no food of any sort. One drachm to one ounce should be given at least three times a day—well diluted.

Kerley has shown during the year, by a series of careful experiments, well guarded by control tests, that a starch enzyme exists in the intestine of the infant from birth, and Corlette has definitely said that there is no evidence that young infants cannot digest starch.

Fat digestion has been further worked out by Sedgwick, who has demonstrated in the infantile stomach a fat-splitting ferment which may be found as early, certainly, as the second week.

Congenital Hypertrophic Pyloric Stenosis.

It would be difficult to find this year a magazine, devoted to pediatrics, which does not contain some reference to this disorder.

Some authorities consider the usual designation a misnomer and would substitute "Infantile" for "Congenital," on the ground that the hypothesis of the existence of the disease before birth has not been verified.

The summary of the writings and observations of the past year indicates that the disease is much more common than is generally realized.

There are three theories to account for the manner in which the disease is produced:

I. That it is a spasm of the pylorus from disturbances in the nervous coordination.

II. That it is a spasm of the pylorus from hyperacidity (from the closure of the pylorus during the production of hydrochloric acid).

III. That it is a developmental hyperplasia of the pylorus.

Thus it may be that there are two classes of cases to be separated one from the other—the cases of spasm and the cases of true hypertrophy—or it may be, as Sturmdorf suggests, that these are two different stages of one disease. Thus:

First—Single spasm.
Second—Spasm and hypertrophy.
Third—Tumefaction and stenosis.

The majority of the cases occur in

boys. The symptoms begin usually before the third month, although one case has been reported, in which the diagnosis was confirmed by operation, where they were present from birth.

Vomiting is usually the first symptom to attract attention—marked, persistent and increasing. It is very forcible in its nature, and in amount is usually more than the quantity ingested at one feeding. It has occurred as often as twenty-seven times in twenty-four hours. The vomiting takes place some time after the administration of food and the vomitus usually contains much mucus—never bile. Finally the patient ejects everything taken into the stomach, even water. Visible peristalsis, and reverse peristalsis occasionally, are observed a varying length of time after the food enters the stomach.

A tumor about the size of the adult thumb is palpable in the region of the pylorus.

Constipation is present in some cases—absent in others. Some authors consider the absence of milk stools (owing of course to the absence of milk passing through the pylorus), and the substitution for them of a meconium-like stool, to be well-nigh characteristic. Infrequent urination is very often present.

Rapid emaciation completes the clinical picture, and the death of these little unfortunates usually occurs within a month—unless the disease be promptly diagnosed and as promptly treated. Early diagnosis is the key to the situation.

Still considers no combination of symptoms sufficient for the diagnosis of congenital hypertrophic pyloric stenosis, in the absence of well-marked, visible peristalsis, associated with palpable thickening of the pylorus. Other observers consider the pyloric tumor important but inconstant, and one has reported a case, verified later by operation, in which abdominal palpation failed to disclose it.

Treatment—Much study is required to separate the cases of true hypertrophy, necessitating operation, from those of spasm, curable by simpler means.

Many cases have been reported cured by gastric lavage, combined of course with careful feeding. Stomach washing should be done twice daily with a solution of sodium bicarbonate, before the feeding. A few cases have been reported cured by small doses of opium. All of these cases undoubtedly belong under the heading of pyloric spasm. It should not be forgotten that a tumor is palpable in this class of cases, nor should we lose sight of the fact that improvement occurs only after some weeks of careful treatment. Therefore an extended and very thorough trial of careful feeding and regular lavage should be made before operation is resorted to.

These simple measures failing, operation is imperative. Of the several surgical procedures which have been utilized in this condition, the one most likely to be successful is gastro-jejunostomy. Any operation, however, in an infant badly wasted, is apt to be fatal; and it is very probable, therefore, that the high mortality in this disease rests rather upon the shoulders of the physician than upon those of the surgeon—for an early diagnosis is necessary if the child is to combat successfully the shock of the operation.

Typhoid Fever.

The most important phase of typhoid fever in the child is its early diagnosis. It is becoming more and more certain that typhoid in children is not the rarity that we at one time considered it to be.

In young infants the diagnosis between typhoid fever and some more simple gastro-enteric condition is by no means easy. The premonitory symptoms are very indefinite—although Pater and Halbron consider the combination of abdominal pain and repeated vomiting, coupled perhaps with somnolence, very suggestive of typhoid. The pain is described as sub-acute and indefinite, or localized, and paroxysmal or continuous. The vomiting is alimentary, watery or bilious. The older the child, the more apt is the pulse to be dicrotic; and when it is so, it is a very important diagnostic help in distinguishing these cases of abdominal pain and vomiting from cases of appendicitis. Regis has called attention during the year to a sign first described by Philipowicz, of Odessa, in 1903. It is a marked yellow coloration of the palms of the hands and the soles of the feet, which makes its appearance usually during the first week—occasionally during the second. It is most commonly found in children, next most commonly in women, and occurs least frequently in men.

Rose spots occur in 84 per cent. of the cases, between the 5th and 7th days.

Enlarged spleen is found in 75 per cent. of these little patients, and when it does occur it is found early in the disease—as a rule by the 5th day.

The Widal reaction is positive at some time in the disease in 95 per cent. of the cases. No agreement has been reached touching its early or late occurrence. It disappears in the child after two months, as against four or five months in the adult.

It is asserted and denied that the diazo reaction of Ehrlich occurs early in the disease. In considering its diagnostic import we should not forget that it has been found present in measles, scarlet fever, diphtheria, epidemic cerebro-spinal meningitis, tuberculosis, pneumonia, acute tonsillitis and erythema nodosum.

Symptoms—Pressed for the most characteristic feature of typhoid in the child as compared with the adult, the answer would probably be the wide excursions of temperature, which make the diagnosis so puzzling. Although the temperature is said not to be excessive, a series of 145 cases has recently been reported in which three-quarters of the series had a temperature of 104 degrees or over.

Diarrhea occurs throughout the attack in 50 per cent. of the cases; at some time or other during the attack, usually after preliminary constipation, in 87 per cent.

Meteorism is observed in 62 per cent. of children with typhoid.

Perforation is as frequent as in the adult, but there is this difference—that in the child its recognition is almost impossible. Most of the cases occur between 8 and 9 years of age, and the duration of the disease varies from 8 to 46 days. The mortality ranges between 8 and 14 per cent., varying inversely as the age of the child. The younger the age, the greater the mortality. In France, during the past 5 years, the death rate from typhoid fever has been reduced from 17 to 3 per cent. in patients treated with the Chantemesse serum.

Treatment—Hydrotherapy is the routine treatment. The bath should be at a temperature of from 80 degrees to 85 degrees Fahrenheit, and its duration should be short—certainly not more than four or five minutes. As Dr. Ager has indicated to us, the chief danger is that of overloading the stomach and intestine.

Cyclic Vomiting.

Cyclic vomiting has attracted no little amount of attention during the year. This is a disease of unknown etiology, characterized by recurrent attacks of vomiting. It generally makes its appearance after the first year of life. Toward the close of childhood the attacks may gradually cease, or the dyscrasia which causes it may persist, and, in adult life, be expressed in terms of recurrent attacks of migraine.

Preceding an attack there is frequently a prodromal period of malaise and constipation, with perhaps a rise of temperature. Then, with no antecedent nausea, begins a siege of persistent, intractable vomiting, which lasts for several days—sometimes for a week or more. The vomiting is aggravated by the ingestion of solids or liquids of any sort, and even water is intolerable. Thirst is intense, and in protracted cases the abdomen is retracted. Gastric pain is absent, and the appetite is always retained. The temperature is slight in proportion to the apparent gravity of the situation. The odor of acetone is perceptible on the breath and in the urine. The attacks recur at intervals varying from a few weeks to a year in length. Urinalysis discovers acetone, diacetic or beta-oxybutyric acid.

The only treatment that is of any avail is the administration of alkalies—generally the bicarbonate of soda in doses of 150 grains daily.

Cases are on record in which an attack has been aborted by this treatment.

A side-light of the most fascinating interest has been thrown on this disease (which is quite generally conceded to be an acid intoxication) by Langmead. This gentleman had under his care several children who had been overdosed with the salicylates. Their symptoms were those of an acid intoxication; and as Langmead was at that time much interested in cyclic vomiting, he examined the urine for acetone, and found a positive reaction in every case. Also, bicarbonate of soda proved curative.

Appendicitis.

The evolution of appendicitis in infants is exceptionally rapid, and the prognosis grave, concludes Kirmisson, after an analysis of his own cases and a review of the literature. The only children who recovered were those operated on at once. Differentiation from ordinary gastro-enteritis is difficult. The most striking symptom is the stoppage of stools and flatus, and were it not for the temperature these cases would be diagnosed as invagination. In the children under twelve months, diagnosis was not made until the autopsy, and it is possible that many children pass through an attack of appendicitis which proves mild, and being mild, is unrecognized.

Dowd concludes that peritonitis in children develops rapidly and insidiously—in that there may be daily stools and very slight abdominal pain, and yet the children may die of a general peritonitis. Cases with adhesions and thickening of the appendix are relatively rare—so that the attempt made by the tissues in the adult at a limitation of the disease seems to be lacking in childhood.

Thymus.

One of our most cherished traditions has been very recently overthrown. The writer refers to the growth of the thymus gland after birth. Bovaird and Nicoll conclude, after a large number of observations, that there is no evidence of the growth of the thymus after birth, under ordinary conditions. Under special conditions, however, the gland does increase in size and may even hypertrophy enormously. Then, too, the weight which has usually been stated is excessive, because pathological glands have been accepted as being of normal weight. The average weight of the thymus at autopsy, in cases varying from birth to five years of age, they found to be 6 gms.

NEURASTHENIA.

By HIRAM ELLIOTT, M.D.,

TROY, N. Y.

NEURASTHENIA is no new affliction. Hippocrates knew of its existence, as his writings are abundant evidence. So also many other comparatively early writers, who referred to it in a more or less vague way, and made some attempt to give its clinical history. Later much was written on the subject under such titles as vapors, hypochondriasis, spleen, nerve sickness, the English disease, spine-irritation, and the like; but it was not until 1867 that Van Deusen first described the condition rationally, and not until 1870 that Beard in this country entered it up officially, so to speak, as neurasthenia.

During the past fifteen years neurasthenia has been studied very closely both in this country and abroad. Although sometimes called the American disease, it has become so prevalent in all civilized countries as to absorb a large share of attention. Besides almost numberless monagrams, every work on general medicine or neurology has a long chapter on this topic, and surely every phase of the condition has been thoroughly elaborated. In going over this extensive literature one is struck with the uniformity of the findings of the various observers, the few differences of opinion having reference to the etiology, classification and the treatment. It is with an apology, therefore, that I offer this paper, feeling that it is destined to be considered an infliction.

Neurasthenia may be roughly defined as prolonged, excessive functional weakness and irritability of the nervous system, unaccompanied by mental derangement. In some way the nervous organs have been brought into a state in which they are no longer able to supply nervous energy in sufficient amount to meet the ordinary demands. Moreover, the flow of nervous force is not well controlled, but is balky and intermittent. The irritability manifested is partly intrinsic and partly the expression of this inadequacy, the whole organism behaving as though it had fallen into a state of utter, painful fatigue, which rest and the usual means of recuperation fail to relieve.

The admission is made right here that this definition does not outline any specific pathological entity. It is intended, rather, to circumscribe a quite large group of symptoms, many of them very marked in character, which seem to be the ultimate expression through the nervous structures of a considerable number of diseased conditions. Be the pathology what it may, we have here a clinical entity which is so prevalent and so urgent that it is well worthy of any consideration, the purpose of which is to trace its relationship to any underlying disease, and thus the better bring it into the range of the skill of the physician or surgeon.

Inasmuch as I have introduced this disorder as a bundle of nervous manifestations, it seems to me that I should take up the symptomatology first and afterwards try to show where and how this originates.

Clinical History. — Neurasthenia, with the exception of the traumatic type, is usually of a very insidious onset, and I think, if the facts were carefully gone into, that even in the traumatic type the state of health previous to the accident was none of the best in the great majority of the cases. The peculiar temperament of those subject to this disorder, as well as the nature of their malady, tends to keep neurasthenics in the background, and they rarely come under the neurologist's notice until the condition is pretty fully developed. Practically all have had treatment for various ailments, and according to various regular and irregular methods. Really in feeble health, but regarded by their friends as well enough, they go along about their duties until some untoward event, often very trivial, adds the last straw to the burden which demoralizes nervous action. These patients now come into your office, no longer complaining of petty ailments, but prostrated and overwhelmed with a sense of insufficiency and misery. Their answers to questions are usually indefinite and unsatisfactory, but careful examination will elicit some of the following phenomena:

Headache, usually diurnal, and oftenest frontal or occipital, frequently accompanied by a sense of cranial fulness or emptiness or constriction, ringing in the ears, pressure or a burning sensation in the vertex, itchiness or tenderness or even severe pain in the scalp, burning of the ears and a sense of congestion in the mastoid regions are complained of in the majority of the cases. Very many complain of pain or tenderness in the spine, burning or chilly or numb sensations between the shoulders or other parts of the back, and a few of coccydynia. In some cases there are tender points in various parts of the body or localised pains of a neuralgic character.

Many patients complain of a dragging or clutching sensation in the abdomen, or sometimes of a sinking or negative feeling in the same region, most distressing symptoms . when marked. Indigestion, flatulence, and constipation are nearly always present, though there is sometimes marked diarrhea in women. The appetite is variable, but keen relish for food is absent, and the patients often gulp down their food as quickly as possible as though wishing to get through with a disagreeable duty. Sometimes the digestive functions seem about normal. Often the mouth and throat are dry and there is great thirst, but sometimes the salivary glands are hyperactive.

Most patients complain of shortness of breath under slight exertion, palpitations which come on without provocation, day or night, pulsations in the extremities, vertigo and fainting, flushing of the face, and hot flashes. Very many fear that they have serious disease of the heart, and describe sharp pains radiating from the heart and down the inside of the left arm closely simulating angina. Itching points, sometimes bilateral and symmetrical, are common, and localized sweating, usually confined to the trunk, is not rare.

Sexual power is weakened or lost in men. Women often manifest marked sexual irritability, and menstruation is frequently irregular and attended with great prostration. Sometimes this function is unaffected. Some complain of a sense of coldness in the perineal region and some of intense burning prurigo, superficial or deep-seated neuralgic pains, and all sorts of sensations in the testicles or ovaries are very frequent.

Marked insomnia is the rule, and when they get sleep in fair amount they say they awake unrefreshed. Most neurasthenics keep their eyes closed when in bed and thus often get the credit for sleeping when they are really wide awake. Very many seek hypnotic aid to enable them to dismiss quickly the misery they have suffered during the day, and often they require very strong sedatives to calm the increased restlessness that comes on at bedtime. Women with hysterical complication often choose this occasion for their paroxysms.

Mentally, practically all neurasthenics are depressed. Their power of concentration is weakened and they are harassed by doubts and fears and suspicions. Incapacity for prolonged exertion of any kind, mental or physical, and an ever present feeling of great languor are constant symptoms. They are introspective, moody and complaining, and trivial circumstances cause them great annoyance and distress. Memory for events coming within the narrowed circle of their thoughts usually remains good, otherwise it is apt to be poor from weakened power of attention. Great variation marks the course of the symptoms in some cases. A patient may seem to be doing well and in a few hours be prostrate in bed; or several days of improvement may suddenly terminate in complete relapse. Great instability of the emotions is the rule, and mostly neurasthenics lead a miserable existence, being unable to fix their attention on any duty or amusement.

Physical examination usually shows high pulse rate, 12 degrees or more if there is much depression, great variability or arterial tension, and very fickle and easily disturbed vaso-motor control. Rumpf's symptom, namely, increase of the pulse rate produced by pressure on tender points found on various part of the body surface, is occasionally demonstrable. The skin usually appears fairly healthy, but sometimes it is dry and harsh, and occasionally there is tinea versi-color or mollusoum epitheliale. The general aspect of the patient is often that of health.

There is some flabbiness of the muscles, but no marked wasting unless from some other disease running intercurrently, and the electric reactions are normal. Both the superficial and the deep reflexes are exaggerated. Vision is about normal, but the eyes soon tire and there are floating specks in the field of vision. There may be some drooping of the lids, the pupils are often dilated and occasionally unequal, and there is great reflex irritability of the iris.

Narrow ranges of temperature are by no means rare and examination of the blood sometimes shows increase of leucocytes, but usually nothing very extraordinary. There is often albuminuria, phosphaturia or glycosuria, varying from slight to considerable, and the quantity of urea excreted is apt to be below normal, often considerably so when headache is a prominent symptom. Oxalates are frequent and the phosphates are apt to be augmented. Pus and epithelial cells of various classes are almost universal in the urine of women patients indicative of leucorrhea and cystitis. In that of men spermatozoids are very frequent. The amount of urine in twenty-four hours is sometimes below normal and sometimes there is great increase.

It is not claimed that the foregoing physical manifestations are all peculiar to the neurasthenic condition, or that the patient is healthy in other respects. The opposites would be nearer the truth. In fact, as will be set forth later in this paper, I believe that other serious diseases always do exist, and that it is these that reduce the organism to that state of weakness and irritability of which the foregoing symptoms are the clinical expression.

Course and Prognosis.—The course of neurasthenia is always tedious and prolonged, often extending over years. Remissions, intermissions and relapses are very common. Both the course and the prognosis depend in a large degree upon the strength of the inherited tendency and the removability of the exciting causes. Restoration to perfect health is the exception. A fair proportion of the cases get well enough to return to duty, but their capacity for work is reduced and they remain sensitive and weak. Quite a large percentage become chronic invalids and die comparatively early. If the disease has come on after middle life it usually runs a severe and unfavorable course and occasionally terminates in melancholia. The tendency to insanity appears not to be very great, and a fatal termination is not common; in fact, those afflicted seem to enjoy a comparative immunity from diseases other than those which underlie the neurasthenic condition. I have seen quite a number of cases of insanity occurring during or after middle life in which there was a history of "nervous prostration" in youth, but of course the precise nature of this "nervous prostration" could rarely be made out. Undoubtedly the acuter forms, especially that due to traumatism, and those cases of acute nervous breakdown from overstrain, do best, but I think that no case should be regarded as utterly hopeless of at least some improvement. The cases due to accidents in which some corporation is held to be responsible are apt to recover promptly after the damages are awarded.

Such is about the symptomatology, course and prognosis of neurasthenia as I have found it in my experience. Doubtless many other important points have been brought out by shrewder observers. You have observed that I have avoided all discussion of complications and the many pathological conditions which underlie the condition under consideration, the reason for which will appear later.

Etiology.—This naturally divides itself into predisposing and exciting causes, and among the former heredity of course stands first. Hereditary predisposition to a given disease can only be estimated after it has been put to the test, and that in the presence of the exciting causes of that disease, due allowance being made for accidental conditions. The readiness with which the individual succumbs to these exciting causes is the measure of his hereditary tendency in the particular instance. Manifestly this is a wide reaching principle, including under it not only all those constitutional peculiarities or weaknesses which directly render an individual prone to disease, but also those, because of which he falls into debilitating vices or habits of living, which reduce his powers of resistance.

A man is all that his parents were at the moment of his pro-creation, plus the accidents that have happened to him since that moment. A parent of excellent stock, but worn out by business cares or excesses, may thus beget highly neurotic offspring, so that figuring out heredity becomes a very puzzling matter. I find myself getting into the very slovenly habit of spending my energy on the conditions found and their exciting causes and assuming the hereditary tendency. It may not be scientific to do so, but I have an idea that it is very fashionable, and I feel certain that it is pretty safe.

Sex is said to have no influence as a predisposing factor, but I think you will agree with me when I say that typical cases of the condition under consideration are most frequently males. As to age, the majority of the cases occur between the ages of 25 and 50, when mind and body are most active; of course many cases occur both before and after this period. Climate is said to have some influence, the more stimulating climate of this country being set down as the cause why neurasthenia should prevail here to a greater extent than elsewhere. Certainly climatic conditions which stimulate people to extravagant waste of nervous energy would be predisposing factors. City life is mentioned in the same category, but it is my belief that a greater relative proportion of cases occur in the country than in the cities. Idleness must be mentioned in the same connection.

In considering the exciting causes of neurasthenia it seems to me to be important to keep in mind one of its most striking characteristics. I refer to its tendency to continue almost indefinitely without very manifest pathology peculiar to itself. This suggests the idea that the cause is also a continuously acting one, something which continues to prevent the normal formation of nervous energy, or which wastes it, or deflects it into improper channels, leaving the nervous organs weakened but not diseased. If such were found to be the case, it would serve to account for the slight tendency to recovery so often observed.

As illustrative take dysentery, assigned as an occasional cause of neurasthenia. Here we have a debilitating disease, notoriously chronic, with a pathology and clinical history of its own, ultimately so impressing the nervous structures as to cause them to go on manifesting a group of symptoms which almost overshadows its own. Malaria, arsenic and lead poisoning, floating kidney, and syphilis, also assigned as occasional causes, would come into about the same class.

As a much more common and powerful cause we have those diseased conditions of the male generative organs by reason of which the seminal fluid is wasted. Whether the system is weakened by the extraordinary demands on the nervous energy necessary to keep up the supply of this most highly organized product, or whether the damage is done in some other way, the conditions referred to appear to be capable of producing the most typical cases of neurasthenia we see. It is not the province of this paper to go into the causes of these conditions, whether sexual excess, or inversion, or perversion, or gonorrhea, or traumatism; or into their clinical history. They are common and have their place in medical literature, where their chronicity and intractability are set forth as well as their frequent ultimate demoralizing effect on the nervous system. The frequency with which spermatazoids are found in the urine of neurasthenics, and the fact that material improvement rarely shows itself as long as they continue to appear, further indicate the importance of this etiological factor. Analogous diseases doubtless occur in the generative organs of the female, arising in a similar way, running the same chronic and intractable course, with exhausting discharges and pernicious reflex effects, and ending in nervous breakdown, as is abundantly testified in works on gynecology.

That excesses and abuses of the sexual function ever produce neurasthenia of themselves, excepting through the medium of the diseased conditions referred to in the last paragraph, is placed in doubt by the best observers. Personally I have not seen a clear case. Sexual vices, of course, directly induce functional disturbances of the nervous organs, and while the symptoms here are often of not less serious import, they differ essentially from the manifestations of neurasthenia. To characterize them loosely the former are positive, while the latter are negative, the offensive obtrusiveness of the precocious dement standing in marked contrast to the shy timidity of the neurasthenic, as an example.

But the chief places in the etiology of nervous prostration are usually assigned to overwork and worry. Excessive toil, however, with proper intervals for rest and recuperation, appears to have little influence. It is the anxiety that is ever present with the victim that robs him of sleep and drives him to the use of hypnotics; that induces dyspepsia and constipation and hepatic torpidity; that causes phosphaturia and glycosuria and varying degres of nephritis; that impels him to the excessive use of tobacco, or alcohol, or even drugs, each with its own train of consequences; it is chiefly this, in my opinion, that brings him down. Moreover, it is the set of pathological results just named that immediately underlie the neurasthenic condition and without which it would not exist. In other words, overwork and worry lead up to neurasthenia by first producing a series of debilitating morbid entities, which are able not only to unfit the individual for responsible duty, but also to perpetuate the feeling of utter fatigue and prostration long after all duties have been given up.

Blighted affection, bereavements and disappointments are also assignable causes. Here profound mental shock, often following a long period of anxiety or expectancy, appears to arrest the normal flow of nervous energy and to dissipate it in painful emotions. Self-control is weakened and sexual vices are apt to augment greatly these etiological factors. It must be mentioned, however, that varying degrees and forms of mental derangement are much more likely to arise from this group of causes than true neurasthenia. Sometimes a period, during which the patient is emotional, confused, disinterested, and somewhat silly in demeanor, precedes the phenomena of nervous prostration. Fortunately, quite a proportion of these cases get well before this occurs, and sometimes the transformation is into marked insanity.

Traumatism is a well-recognized cause of neurasthenia, but considerable difference of opinion exists among observers as to how it gives rise to the symptomatology. In accident cases some claim that the symptoms are caused by concussion or anemia of the spinal cord or some actual disease of its substance or meninges. Others regard them as the manifestations of a purely functional disturbance of the nervous system. The latter view is upheld by Bramwell in an elaborate chapter on this topic in his "Diseases of the Spinal Cord," though doubtless in many cases both conditions exist. The shock of a railway collision would, of course, be all-sufficient to demoralize the nervous functions in a predisposed person, and doubtless, too, the mental impression of the accident would be very slow to disappear, but it does not seem to me that anxiety over the litigation that usually follows does much to prolong the symptoms. A little malingering may enter into some of the cases, too. At all events a fair proportion of them get well speedily after the damages are awarded. In those cases which become chronic I am strongly inclined to the belief that more or less well defined lesions could be found to exist, lesions which may or may not have been produced by the accident.

The drug and alcohol addictions do not appear to be very strong etiological factors of themselves in the production of neurasthenia. As already stated, they doubtless play a part in conjunction with other causes. Chronic gastric ulcer is to be named as an occasional cause, as also dilatation and dislocation of the stomach. One of the severest cases I have seen was apparently caused by a calcareous nodule in the lower part of the ilium, partly occluding its lumen. Doubtless other occasional causes occur to you all. But I must not quit this topic without calling attention to the view held by some that auto-intoxications play an important part both in the causation and also in the perpetuation of this disease. Oppenheim regards this as not proven, but I am of the opinion that varying degrees of toxemia of intestinal origin are not very rare during its course with certainly no good effect upon the symptoms. In fact, I regard its possibility as something always to be kept in mind.

Essential Nature and Pathology.—The essential element in neurasthenia is a deficiency of nervous energy, notwithstanding the apparent soundness of the nervous organs. Either the normal amount is not generated or, having been generated, it is dissipated in some extraordinary way. The former alternative would mean that by reason of diseased conditions of the organs of nutrition and assimilation the nervous system was starved, or possibly compromised by toxic matter in the circulating fluids. The latter points to exhausting discharges, or to the consumption of abnormally large amounts of nerve energy in the production of what are termed the feelings. Professor James informs us that the feelings have their basis in innumerable minute tissue waves, and if this be so the amount of energy used up in exaggerated emotional states would plainly be considerable. It seems to me that some of the acute neurasthenic conditions might be accounted for at least partially by this assumption.

If the foregoing conception of neurasthenia is correct it has no pathology peculiar to itself. Of course those diseases named as leading up to it have their own lesions, which may possibly assume additional seriousness when the neurasthenic condition is well established. They are to be studied in their own proper place and hardly come within the scope of this paper. Certainly efforts to establish the existence of lesions peculiar to neurasthenia have not been very well rewarded and it seems to me now that if more skilful investigation shall reveal a minute pathology the grosser and more remote lesions referred to will not lose their importance.

Diagnosis.—The conditions most likely to be confounded with the acute forms of neurasthenia due to emotional shock are mild degrees of insanity, and, in fact, I regard mental derangement as a commoner result of this cause than neurasthenia. Of course the deciding question is whether the symptoms originate in a lack of mental control or an intrinsic enfeeblement of the nervous functions. I had this class of cases in mind when I added the clause, without mental derangement, to my definition.

In traumatic cases the principal things to be on the lookout for are hysteria and malingering. The more positive character of hysteria and its intermittency serve to distinguish it, but malingering by a clever person in expectation of large damages may be very deceptive. The negative condition is very hard to imitate, however, and the malingerer is apt to overdue what he intends. The condition of the reflexes may help to make the diagnosis clear. It is not to be forgotten that hysteria is an occasional complication of neurasthenia.

Locomotor ataxia may be excluded by its own positive sign and paresis as well. Neurasthenia may be present in the onset of both these diseases, especially the latter, and it is only, of course, when the positive signs of these diseases appear that they can be diagnosed. Neurasthenia is never confounded with any form of melancholia by anyone acquainted with the two conditions. Spinal syphilis may produce smyptoms that are typically neurasthenic and, of course, is excluded mainly by its history. I think it may be stated as a general principle that the more carefully a nervous case is studied the less likely it will be pronounced neurasthenia. A pathology will be unearthed in most cases which will relegate them to their proper category with neurasthenia as a general manifestation.

Classification.—The classification of neurasthenia according to any one scientific basis is not a very easy matter. Berkely makes seven types: the cerebral, the spinal, the genital, the traumatic, the acute, the hysterical and the gastric, according to the prominence of certain symptoms, the cause, and the manner of onset. Of course these types are scarcely exclusive of each other, and it is not intended that they should be so. Dana has five classes: traumatic neuroses, spinal irritation, anxiety neuroses, angiopathic neurasthenia and neurasthenia gravis, a very good arrangement indeed for the purposes of study. He also describes a form which he calls acute neurasthenia, including under it varying degrees of nervous exhaustion which are the immediate result of work, worry and excesses, and which are usually quickly relieved by rest and hygiene. I have no classification of my own to offer.

Treatment.—The neurotic temperament manifests itself very early in life, and hence the prophylactic treatment of this as well as all neuroses of this class is of the highest importance. Youth should be encouraged to develop their bodies with healthful outdoor exercise, and to cultivate habits of patience and moderation in all their actions. They often break down at school, a disaster which might have been averted by well-timed relaxation and rest. Unfortunately, the more sensitive and ambitious children have the lowest power of endurance, and these are the very ones that are apt to be crowded through the schools and colleges and into the professions where anxiety and responsibility are at their highest pitch. They are too delicate to work on the farm, and so are sent into the practice of medicine where they may have it easy.

The completer cure of venereal diseases would certainly prevent some cases of neurasthenia. I need only hint at the multitude of debilitating pelvic diseases occurring in both sexes which arise from gonorrhea alone, practically all of which could have been prevented. But the difficulties that lie in this direction are known to you all. It seems to be an impossibility to make patients suffering from gonorrhea see the dangers of incomplete cure, for they quit their physician, if indeed they ever had done, as soon as they can pass their urine freely and without pain.

Against sexual excesses or vices, the various habituations over work and worry, and the like, the physician often gets an opportunity to utter a word of warning, and his influence may be considerable, but I fear that actual results from such efforts are small. As already stated, the neurasthenic condition is apt to be pretty well developed when the case comes into the neurologist's notice. The patient is then desirous of relief from his distress and is in very bad humor to receive a moral lecture.

As already hinted above, the success in the treatment of neurasthenia will usually depend largely upon the removal or cure of its causes. If the patient is addicted to the excessive use of drugs, alcohol, tobacco, or any excesses, it may be necessary to assist his weakened self-control by at least temporary isolation. One thing is certain, not much headway is to be expected as long as any of those things continue. Cases due to overwork will usually do well with rest, with systematic light exercise or travel. Sometimes passive exercises will be called for, and one thing is to be borne in mind, and that is, that the exercise must not be excessive. I have seen a number of cases where they had plainly received injury instead of benefit from injudicious exercise. As a rule when the symptoms are severe complete rest in bed with fluid diet is best for a time. If there are diseased states of the productive apparatus there is nothing more important than their alleviation or cure, and in my experience there is nothing more difficult. But intractable or not, as these conditions may be, I have noticed that the measure of success attained in this direction is about the measure of success in curing or relieving the neurasthenic state. Other stumbling-blocks are inveterate vicious practices, in the presence of which treatment is almost useless.

As to remedies, the application of heat and cold to the spine, and the various hydro-therapeutic baths should be tried, care being taken not to exhaust the strength of the patient. Electricity as a remedy here is disappointing, excepting in a local way to relieve pruritis, for example, or to aid in dispelling congestions or hyperplasias in the pelvic viscera, where it has many advocates and is of undoubted value in some cases. The electric bath and the shower from the static machine are used, and the physician should consider himself lucky if his patient does not come back the next day with a new symptom caused by the machine. Massage and passive exercise in moderation have much to recommend them, as the osteopaths have found out to their great profit, and especially when given in connection with the rest cure and stuffing process as devised by Weir Mitchell. The exercises of the Zander method for very mild cases is strongly recommended by those who have tried them.

As to medicines we have to admit that we have no specifics for the cure of this disease. All the tonics are of occasional benefit, and the same may be said of orchitic fluid and some of the other organic products. For the restlessness I have found the bromide of strontium of positive value, as well as free from the ill effects of the other bromides when given continuously. I have not seen a case where alteratives were of value, though doubtless they would be indicated where there was a syphilitic taint present. Nitro muriatic acid where there is oxaluria or phosphaturia is of undoubted service, as are some of the diuretics when there is a decrease in the amount of urea secreted.

All sorts of laxatives will have to be tried, but I have found the mixture known as Chelsea Pensioner to be very effective where there are pelvic troubles along with constipation. Hypnotics will be called for in most cases, but their routine use should be avoided as long as possible. They are all demoralizing if used extensively and the danger of the formation of habit is very great. Sulfonal, tional, somnos, veronal and paraldehyde will usually do the work for a time, and while these are the safest, even they are not free from the danger of habit formation. Opium and its alkaloid are especially seductive in these cases, and I have yet to see a case which made any headway while using this drug even in small quantities. If a neurasthenic has once had an injection of morphine for his headache or a local neuralgia, he is pretty sure to ask for it when the next attack comes on. So with hypnotics. When bedtime comes he is apt to ask for a sleeping potion simply because he has not the patience to enable him to wait for natural sleep, and thus become addicted to hypnotics, not because of any pleasing effects he experiences, but because he believes he cannot get along without them. I have seen some of such cases do well if put to bed and restricted to milk diet, with the addition of massage and hot baths. It seems to me that the treatment of neurasthenia is practically all included in this: rest, proper hygiene and proper habits, due attention to intercurrent and underlying diseases, tonics, massage and proper forms of exercise, proper diet, and hypnotics when all other means of securing sleep have been tried and proved unavailing.

To sum up.—It seems to me that the following corollaries may fairly be deduced from the foregoing arguments:

1. That the proposition that neurasthenia is a distinct pathological entity stands unproven.

2. That there is a large and ever-increasing class of individuals whose nervous organization is so unstable that it readily succumbs to overstrain, shock, excesses, and the weakening effects of disease.

3. That in these predisposed persons a marked general reduction in the activity of the nervous functions may eventuate from a variety of comparatively local diseased conditions.

4. That probably in all cases where the neurasthenic condition becomes chronic it rests upon and is perpetuated by some equally chronic vice or disease.

5. That the great variety and changeability of the symptoms is further evidence of their indirect and secondary character.

6. That any scheme of treatment of chronic neurasthenia not founded on the foregoing assumption has so far proved to be practically useless in affecting a cure.

TRANSACTIONS

OF THE

ASSOCIATED PHYSICIANS OF LONG ISLAND.

PRELIMINARY REPORT ON TYPHOID FEVER ON LONG ISLAND.

Harold E. Hewlett,
Bablyon.

Mr. President and Members of The Associated Physicians of Long Island:

I regret to say that the preliminary report we offer to-day is far from complete. The fault lies with the chairman, and some of those to whom circulars were sent who did not answer them.

Following the example of the Chairman of the Committee on Malaria, topographical maps of Long Island have been obtained. The maps divide Long Island into fifteen sections. Each section represents a certain number of towns. The physicians in each town could be seen or written to without much trouble by a member of the Committee who represents that section. If the plan meets with the President's approval, we will ask him to add a sufficient number to our committee to represent fifteen sections.

Many interesting reports have been received which I thought best to reserve for the final report. I may say also that many answers are still coming in. A few of the answers I will read to-day which we think of especial interest. I believe, also, that Health Officers should be particularly interviewed for the final report.

Circulars each with 13 printed questions were sent to all of the members of the Association—472 in all.

The questions were as follows:

I. How many cases of Typhoid have you had in last four years?

II. Can you trace source of contagion?

III. Were cases severe or mild?

IV. Were they in one locality or scattered?

V. Is Typhoid more prevalent during heavy rainfalls?

VI. Water and milk supply where they occurred?

VII. Oyster supply?

VIII. Did they occur in same locality year after year?

IX. What time of year most prevalent?

X. Character of soil where they occurred?

XI. Please look up reported cases in your town.

XII. Also mortality.

XIII. Give a short description of any case you may think of importance.

Out of the 472 circulars sent out 182 physicians replied.

Thirty of these were specialists who did not take Typhoid cases.

In Brooklyn 106 physicians responded. Forty-six physicians responded from Long Island. I may say again that answers are still coming in.

There were, therefore, 152 circulars answered in full from Long Island and Brooklyn.

Question I, 106 Brooklyn physicians report 477 cases during the last four years. Forty-six Long Island physicians report 217 cases in the same time. Making a total of only 694 cases of Typhoid Fever on Long Island in four years outside of Brooklyn and Long Island hospitals, averaging about four cases to each man in four years, or one case a year for one physician for Brooklyn and Long Island combined.

Hospital reports received are incomplete but can easily be filled in by June.

Kings Park State Hospital, 28 or 30 cases.

Manhattan State Hospital, not given.

Flushing Hospital, not given.

Department of Health, Borough of Brooklyn, report 2,821 Typhoid cases occurring in all the wards of Brooklyn.

Mineola Hospital, 75 cases.

There have been, therefore, 322 cases in all, of Typhoid on Long Island in four years outside of Brooklyn. In Brooklyn are reported 2,821 in the last two years.

From our improved water and milk supply and care on the part of physicians teaching the dangers of contagion, Typhoid, as far as I can trace it from reports and communications from older physicians, is on the decline on Long Island. All the smaller towns are now recognizing the absolute necessity of perfect drainage and clean food supply. Several of the physicians report no Typhoid during the last four years. May we hope in the next four years we will be able to report but few cases.

II. *The source of contagion is not very definite.* Interesting details have been sent by various members. Two of these reports, with the kind permission of Drs. Heyden and Turrell, I will read you, others will be embodied in a later report:

"I wish to report a series of very interesting cases which came under my notice as consulting physician. Perhaps these cases have already been reported, however, by Dr. W. B. Gibson, town health officer, or by Dr. H. H. Davidson.

Mr. B., farmer, was taken ill early in March, 1906. No diagnosis was made. I saw the case March 24th. He had then a severe septic pneumonia with well-marked typhoid symptoms. Death occurred early in April. The brother of the patient living about three miles distant brought his wife and one child to the house, and he and wife nursed the patient for several weeks.

The body of B. was taken to the brother's house and buried from there. In about a week B.'s daughter, who remained with her uncle, was taken sick and was ill about three weeks. During the convalescence of this case the son of the brother, aged six years, was attacked, and after two weeks I saw the case and diagnosed typhoid. The father was then having symptoms of the disease and finally took to his bed.

In a week the mother was taken, then the maid and the stable man, and finally another child who had been at B.'s house but a short time was brought home from her grandparents with the disease. In all, seven cases.

No sanitary precautions had been observed until the third case, the boy, was in the second week of the disease.

Now, the source of infection in these subsequent cases, in my opinion, was B. Where or from what source he was infected I do not know."

"Five years ago there was quite a serious epidemic in the town of Smithtown Branch, most of the cases being near the river. And many of them were traced pretty directly to the eating of raw soft shell clams and oysters, taken from flats and beds near the mouth of the Kings Park sewer.

I have no statistics of this epidemic, and have not been able to get them from the town clerk. The late Dr. Fanning was health officer at that time and the information I have was obtained in conversations with him. The possibility of soft clams acting as agents of infection is interesting to me. I have talked with one of these cases (a cook) where the water and milk supply and hygienic surroundings are above suspicion. This woman had not been away from the estate and had the same food, etc., as the rest of the servants and family, except that she ate some clams raw, while the rest ate them after steaming or boiling. She was the only person who had the fever.

The foregoing are all the cases reported to me as occurring in the town of Smithtown during the past two years."

Source of contagion in Brooklyn is variously given as vacation and country. A. Greeley, M.D., Inspector in charge of Department of Health, Borough of Brooklyn, writes that of the 2,821 cases occurring in Brooklyn about 5 per cent. only had been out of the city during the 30 days previous to onset of disease. Of this 5 per cent. only one-fifth sojourned on Long Island.

Other sources—Bedford Heights, milk supply, water supply Ridgewood, City water and city milk, grocery milk, Flatbush Milk Company, Alex. Campbell Milk Company, milk and infected water. One only ascribed it to eating oysters. Flies, toads, country wells located near homes, Adirondacks, raw clams. (The source of contagion may be looked into later more fully).

Most papers from physicians living on Long Island report most of their cases coming from the cities of New York and Brooklyn. Of the three cases of typhoid which occurred in Babylon this summer, two came from Brooklyn with the disease well marked and one was a summer resident only, who was daily going to New York.

III. *Severe or Mild.*—304 reported severe, 173 reported mild.

IV. *Location.*—313 scattered, 164 localized. Sopers, five cases in one house, well water. Six cases in one house in Brooklyn.

V. All but one agree that typhoid is not prevalent during the time of heavy rainfalls.

VI. Water and milk supply answered in question II, which I have already read.

VII. Only one case reported where oysters seemed to be the infective source.

One case, raw clams.

VIII. Cases mostly scattered. One or two cases reported where they occurred in same town and house for several years.

The only severe epidemic on Long Island, reported by Dr. Bell, will be read at a later period.

IX. Late summer, 13. Fall, 464. Spring, rare, almost none.

X. Character of soil. Nothing of importance; Long Island soil sandy, gravelly and a natural filter-bed. Will have to be looked up later from topographical maps.

XI. Few looked up reported cases in their towns, probably not many cases reported.

XII. The mortality. A communication from Albany reads as follows:

"Replying to yours of November 12th, I am enclosing you herewith some statistics showing the number of deaths reported from typhoid fever on Long Island from 1902 down to date.

"The reports of the cases of typhoid fever are very incomplete in this State, and the Department is endeavoring constantly to secure more complete returns. The reports that have been filed have been so unsatisfactory that we have considered it almost a waste of time to attempt to compile them.

"I am pleased to note that your Society is taking up the question of typhoid fever on Long Island, and will be glad to hear from you further regarding this matter, after you have completed your investigation, and will be glad to render you any assistance in my power, or to co-operate with you in any way."

DEATHS REPORTED FROM TYPHOID FEVER ON LONG ISLAND (1902-1906).

	1902	1903	1904	1905	1906 9 mos.	Total
Borough of Brooklyn	322	303	267	286	154	1332
Borough of Queens..	29	32	21	28	25	135
Nassau County—						
Hempstead (town).	6	1	5	9	4	25
Oyster Bay (town)	—	1	—	2	—	3
North Hempstead (town).	3	2	5	7	3	20
Suffolk County—						
Brookhaven (town).	5	3	6	5	2	21
Southold (town)..	—	1	2	1	2	6
Huntington (town)	2	2	1	2	1	8
Sag Harbor (vill.)	1	—	—	—	—	1
Babylon (town)..	2	—	—	—	—	2
East Hampton (town)	—	—	—	—	—	—
Islip (town)	2	—	—	3	2	7
Riverhead (town)	—	—	2	—	—	2
Shelter Island (town).	—	—	—	—	—	—
Smithtown (town)	1	1	—	1	—	3
Southampton (town)	1	—	1	—	—	2
	374	346	310	344	193	1567

DR. H. A. FAIRBAIRN said: The discussion of the question of typhoid fever is always fruitful and interesting. It would be well to take it up, in some form, at every meeting, that vigilance be not relaxed. I shall not attempt to discuss the work of this committee, as it is admirable and promises to be very thorough. It is to be hoped that the final report will contain a warning to people as to the ever-present liability to contract the disease, especially in large cities, unless they either properly filter or boil the water and exercise scrupulous care as to the uncooked articles of food. In the city you may say it is always with us, at certain seasons more than others, but we are rarely, if ever, free from it.

It is granted that its origin is of organic source, from infected excreta from the victims of this infection that have contaminated directly our water or food products, or have reached their destination through the agency of mosquitoes or flies.

To prevent it must require either the destruction of the poison the moment it leaves the patient, or to keep our water, food and persons from coming in contact with the poison.

You hear much about the purity of city water supplies. You are well aware, if they are extensive, how impossible it is to insure purity. The immediate source may be well protected, but every one knows that springs may travel many miles from sources undreamed of and enter the supply loaded with infection. Trace some supplies you know of through settled districts with their outhouses, drains, stables, cemeteries! I ask you what power on earth can guard them and keep them pure?

The question is up to the one at the faucet. Let him boil the water or properly filter it always and not wait for the periodical warning which comes from health officers, etc., when there is a great prevalence of this disease. In times, when cases are rare, there is an abandonment of these precautions due possibly to the incautious lauding of the virtues of the precarious water supply. Fire and filter are the weapons to be used against the deadly enemy which may lurk in its depths; at present they are the only effectual weapons.

Again, the uncooked food products which are exposed to the infection through careless handling, dirty utensils, exposure to insects, must be cleansed by cooking or they will be active sources of infection.

Let the consumer of products take warning and exercise due care as to cleanliness and sterilization, remembering, while the producer may lighten his risk, he cannot entirely remove it. The responsibility is an individual one.

Let this be his motto: Filter or boil water and beware of uncooked articles of food.

Dr. Bell said that in 1900 an epidemic of typhoid fever occurred in Easthampton town and in the village. For eight to ten years previously typhoid fever had occurred sporadically, 6 to 12 cases a season. In June, 1900, a young man arrived at Easthampton from some point in Connecticut, ill with typhoid fever. The house where the patient resided was in a ravine; two houses were above and four below it. No cases of typhoid occured in the houses above, but in one of the houses below there was visiting and staying for a time a family consisting of a mother and two children. They remained there during the prevalence of the case of typhoid referred to. Finally they moved into their own house, which was about 1,000 feet away and situated on the edge of a swamp. Four other houses had been built near the edge of this swamp sheltering eight families consisting of 17 adults and 20 children. During July when this child was brought home from this infected ravine, they began to have typhoid fever in the other houses. Four children came down with typhoid. The adults were not affected until near the close of the epidemic.

The speaker stated that the most probable explanation of the cause of this outbreak of typhoid fever was, that these people left their food uncovered, so that flies from the privy where the stools of this typhoid child were thrown alighted on the food, and he believed in that way the typhoid fever was spread in these particular cases.

TRANSACTIONS

OF THE

BROOKLYN SOCIETY FOR NEUROLOGY

Frederick Tilney, M.D., *Editor.*

104th Regular Meeting, February 28, 1907.

The President, F. C. Eastman, M.D., in the Chair.

A CASE OF SENSORY APHASIA.

Presented by Dr. E. G. Zabriskie.

NEURASTHENIA.

A paper bearing the above title was read by Dr. Hiram Elliott of Troy, New York.

Dr. William Browning, in discussing Dr. Elliott's paper, said in part: It may sound strange to say that I see but very few cases of neurasthenia; in fact, I hardly make a diagnosis of this condition once a month. Probably as a rule the general practitioner in town retains such cases and treats them himself.

Many other disorders may come on under the guise of neurasthenia, and can only be differentiated by close examination; a daily experience. One case proved to be an incipient melancholia; in another an arterial pressure of over 270 mm. of Hg. showed something more fundamentally wrong; and in a third—the Argyll-Robertson pupil—anenergy, Westphal's sign and hypotonia showed that even a person apparently in the finest of condition might yet have an organic disease. A great number of cases have high blood pressure which is suggestive of arteriosclerosis; hence the value of cold douches whereby a stretching of deeper vessels is determined and some degree of relief afforded. My understanding has been that only a few of these cases have a melancholic tendency, in contradistinction to the view of Dr. Elliott.

Dr. Onuf, in discussing Dr. Elliott's paper, said in part: I wish to say a few words relative to the treatment of this condition, and to this end, first bring forward the excellent general classification of Hysteria and Neurasthenia given by Dr. Dubois. Both of these disorders according to Dubois may be grouped under the general term of neurousism; both are characterized by fatigue, emotionality and suggestibility. It must be borne in mind that neurasthenics are mostly congenital. Part of the treatment, therefore, is to let these patients know of their inherent weakness, so that they may fully appreciate that they can never be quite normal. They must avoid fatigue and all causes which give rise to excessive emotionality. Mental persuasion and hygiene should be the keynote of the treatment.

REVISION OF APHASIA.

A paper by the above title was read by Dr. E. G. Zabriskie, of New York City.

Dr. Onuf, discussing Dr. Zabriskie's paper, spoke as follows: A number of years ago Dr. Joseph Frankel and myself made an extensive study of motor aphasia from personal observations as well as by careful analysis of 103 autopsy cases of this disorder collected from literature. Of these one hundred and three cases, only five showed cortical lesions wholly within Broca's area.

In two others the lesion was not strictly confined to Broca's area, but encroached slightly on neighboring cortical regions. In all other cases Broca's area was either not involved at all, or was so in conjunction with other areas. So that it would seem from these statistics that the role played by Broca's area in aphasia rests upon a surprisingly meagre foundation of fact.

In order to approach the subject from another point we applied Naunyn's scheme. A diagram of the brain surface was made and divided up into squares of equal size. On this diagram the lesions of each case of purely cortical involvement were registered in such manner that each of the squares covered by the lesion received a dot or some other mark. Whenever the lesion of different cases overlapped each other, the squares of the overlapped areas received a corresponding number of dots, so that in each square the number of dots denoted the number of cases in which that particular region of the cortex was encroached upon. A square with sixteen (16) dots meant that the cortical region covered by that square was involved in sixteen cases, etc. Tested by this standard the role of Broca's area for one function of speech was amply borne out, since the registration showed an overwhelming number of dots in the squares lying within Broca's area, *i. e.*, from ten to nineteen dots per square, while the squares lying in other regions showed seven as the highest number, and usually only one, two, three or four. The region most thickly dotted next to Broca's area was the Island of Reil. Marie contends that the lesions of aphasia are generally very extensive, hence the difficulty of exact localization.

The cases personally observed by Dr. Frankel and myself certainly bear out this statement. However, his contention that by reason of vascular distribution Broca's area is never affected alone, cannot be confirmed, since traumatic lesions, for instance, may well give rise occasionally to isolated involvement of Broca's area. It may be well to compare just wherein Marie's views on aphasia differ from those of other authors.

His *Anarthric* corresponds to the aphasia motrice pure of Deperine clinically, but anatomically he gives it a different substratum, considering it as due to lesion of the zone lenticulaire, while Dejerine considered it to be due to lesion of the medullary layer of the third frontal convolution. By zone lenticulaire, as Dr. Zabriskie has explained, Marie defines the white substance situated between the cortex of the insular convolutions and the lenticular nucleus, as also the outer layers of this nucleus itself. He denies to the third frontal convolution any connection with the function of speech and to the angular gyrus the role of a center of the visual word memories, and thus considerably narrows the cortical area which has to do with the function of language. Dr. Zabriskie has given you such a complete resumé of Marie's views that I have nothing more to add. Allow me to say in conclusion that the result of Marie's intellectual test of aphasia, *i. e.*, the complying with three or four demands made in succession, but without pauses between these demands, must be interpreted with due caution in the case of illiterate persons not used to involved mental processes.

Closing the discussion of Dr. Zabriskie's paper, Dr. Browning said in part: The new views cannot upset the facts upon which our general ideas of cerebral localization are based. Many factors, clinical as well as anatomical, must be borne in mind before coming to any conclusion. In aphasia, one of the most important facts to be elicited is whether the patient is congenitally right or left handed. This is not always an easy matter to determine. Thus a boy who gave the history of being right-handed from birth, and who was fully corroborated in this by his parents, was found to be entirely mistaken. As he had just suffered a complete right hemiplegia from an embolism, the absence of any aphasia led to a more careful questioning. From an aunt it was learned that the boy had been born left-handed, and that she had diligently trained him in the use of his right hand during early childhood, and so successfully that she alone knew of his early peculiarity. This example serves to show how carefully all the facts in each case must be determined. Marie's views, it has seemed to me, were partially anticipated by Bastian. Dr. Zabriskie's critique of the subject matter is especially excellent, and with it I entirely concur.

EDITED BY FREDERICK TILNEY, M.D.

TRANSACTIONS

OF THE

BROOKLYN GYNECOLOGICAL SOCIETY.

A. A. HUSSEY, M.D., *Editor.*

Stated Meeting, Feb. 1, 1907. The President, R. H. POMEROY, M.D., in the Chair.

TERATOCEPHALUS.

DR. A. A. HUSSEY exhibited a monstrosity with complete absence of the cranial vault. The patient came into the Brooklyn Hospital Saturday night; she had been in labor since the morning. About nine o'clock the membranes ruptured. About four o'clock the pains became almost continuous. At that time the house obstetrician called him. The preliminary diagnosis made by abdominal examination was of obstructed labor due to a right mento-posterior position. The occipital prominence, which is usually felt, was not marked. Vaginal examination, however, revealed an unexpected condition. A soft mass presented. It consisted of two parts divided by a cleft, and felt not unlike an extensive caput. Pressure on this mass caused spasmodic contractions of the fœtal parts. The face was in the right posterior quadrant. In the opposite quadrant was found a sharp ridge of bone, which resembled a chin felt from below. The ridge of bone could be palpated about the soft mass as the outline of the base of the cranium. The diagnosis of absence of cranial vault was made and forceps applied. There was considerable trouble in getting the shoulders down, as the lower uterine segment was not well dilated by this small head. The anterior clavicle was divided, reducing the diameter of the shoulders, and no further trouble was encountered. The patient made an uneventful recovery. The specimen is a female, weighs 8 pounds, and is perfectly formed below the base of skull. The vertical portion of the frontal and the parietal bones are absent. The brain is rudimentary. The cerebrum is represented by two small lobes about the size of a fig.

INTERSTITIAL PREGNANCY.

DR. R. H. POMEROY, presenting a specimen, said that in the absence of a complete history, there was a question as to whether this was an interstitial pregnancy or a traumatic rupture of the uterus.

The patient came into the Williamsburgh Hospital suffering with severe abdominal pain which began the day before. When he saw her she was in a state of shock from loss of blood, pulse 128, barely felt at the wrist. The abdomen was very much distended, the intestines filled with gas, and she showed evidence during the time she was in the hospital, before he operated, of increasing loss of blood. On opening the abdomen the intestines immediately protruded, but were finally gotten back. There was free blood in the abdominal cavity and immense clots immediately came out; in passing the hand down to the uterus a hole in the fundus was felt, large enough to admit the finger. There was no definite abnormality in the form of the uterus, and in the effort to lift the uterus out of the pelvis, the finger-sized hole immediately spread, and the fœtus was extruded through the rent. As soon as the uterus was lifted out of the abdomen and tension put on the cervix, all hemorrhage ceased and the uterus contracted in a very curious unilateral fashion. A hasty high amputation was made and the cervix afterwards trimmed out. It was observed that the rupture was on the left cornu, but not in the tube.

It was impossible to get a history

from this patient, either before or after the operation, of any interference. She was about four months pregnant. He was in doubt whether some instrument had been passed through the fundus, or whether it was some form of interstitial pregnancy which had ruptured spontaneously. There had been no external hemorrhage. The patient, in spite of hypodermoclysis and stimulation, only lived for thirty hours afterward. One side of the uterus, immediately on extraction from the abdomen, contracted; the other portion remained thin, but at the time of palpating the uterus before contraction it felt as though the uterus was a uniform sac.

Dissection of the specimen in the presence of the Society proved it to be a true interstitial pregnancy. The uterine cavity was shown to have no communication with the ruptured sac in the cornu.

CASES OF APPENDICITIS OF UNUSUAL INTEREST.

Dr. Charles Jewett related the case of a girl of 22 years, who had been ill but a few hours before he saw her. Her temperature was normal. At his first visit she was vomiting at short intervals and complaining of agonizing pain, which was referred to the appendical region. There was no rigidity of the recti muscles to be made out by the touch. In twelve hours the temperature rose, the symptoms continued and the pain grew more severe.

At operation he found a very much distended, mahogany colored, necrotic appendix, which stood erect as it came out, but no inflammation of the peritoneum beyond the appendix. Two fecal concretions were contained in it. The abdomen was closed. The pain subsided and all went well after operation. For three days no food or drink was allowed by the stomach.

The case was of interest, the speaker said, because of the absence of the usual muscular rigidity. That was probably due to absence of inflammation of the peritoneum outside the appendix, and to the necrotic condition of the appendix itself.

In another case, a woman three months pregnant rode in a carriage over rough roads to the doctor's office; she had not at this time been confined to bed. The temperature was 101°. A distinctly circumscribed and very sensitive mass, two-thirds the size of the first, was found in the right iliac fossa; this was believed to be an inflamed appendix rolled up in omentum and it so proved. There was also an ounce of offensive pus locked up in the omental mass, and the latter was glued firmly to the cæcum. After liberating the omental adhesions the appendix was found only after laying open an extensive exudate fully one inch in thickness, in which it was wholly embedded.

Appendix, pus, and all infected omentum were removed, and the abdomen drained.

This patient was treated in the same manner as the preceding one, and is making a comfortable recovery, with no threat of miscarriage.

GLASS TUBES FOR USE IN EXAMINATION OF THE FEMALE BLADDER.

Dr. Robert L. Dickinson stated that he wished to relate, as an introduction to presenting an instrument, the typical history of a most frequent form of bladder trouble. Now that we have been examining such bladders, we find the typical patch at the upper end of the urethra between the urethral openings with various stages and degrees of trouble. We know the history too well, he said, to go into it—bladder trouble, painful urination extending over a long period being the most constant symptoms. However, a large number of other symptoms, such as dysmenorrhea and backache, and even sometimes reflex pains in every direction, may belong to these chronic bladder irritations.

When these cases are typical chronic trigonitis, it is surprising and most satisfactory sometimes to see how much is done by a single application of 50 per cent. or 25 per cent. argyrol. Once knowing that that is the trouble, and that a single application lasts in its effects from four to seven days, the next question comes up as to how that patient shall be treated. She may come to the office, be put in the knee-chest position, the bladder filled with air, and an application made through Kelly's cystoscope to the spot which causes the trouble and annoyance; or she may go back to her country practitioner with the advice that she ought to have that application made at frequent intervals. A female catheter passed into the bladder for the purpose of making the application, encounters an amount of urine, even if the patient immediately before had voided it, that dilutes the application and makes it insufficient. If we could remove the urine at the same time that we apply the argyrol, we would have a means of making our application without diluting it with urine, and it has been a simple thing to have a catheter and an applicator made into a single tube; the patient does not have to change her clothes, she lies in the ordinary dorsal position on the table, and the applicator is partly filled with the argyrol solution and passed into the bladder. The urine runs off through the lower tube; the application is put in through the upper tube, and the patient in a moment gets off the table.

It might be said also that this instrument meets another use. Occasionally one has an intelligent and cleanly patient, who lives at a distance, who can be taught to make her own applications. He had met but three or four such patients, but given intelligence, and a moderate amount of common cleanliness, and clipping of the vulva, it is an entirely feasible instrument for the patient to use herself.

Dr. Charles Jewett said: In regard to Dr. Dickinson's instrument, that it seemed to him might be a useful help. He had used the method of injecting the bladder in office work, using a dram of 10 per cent. solution of argyrol. He had used 50 per cent. for other purposes. The solution is so little irritating, that there is no difficulty in employing almost any strength.

The speaker said he would like to ask if any of the members had used Albargin, which is employed in male cases. He had thought of this for the female bladder. The non-irritating silver salts are a great help in these cases. It is possible to get the effects of silver without pain.

Dr. A. M. Judd said that Dr. Jewett's report of the two appendix cases reminded him of a case he saw for the first time on January 24th. At this time the patient had been ill for two days suffering a good deal of pain in the lower abdomen. There was rigidity of the rectus muscle in this case.

When he opened the abdomen and searched for the appendix, about an ounce of free pus exuded from the abdominal cavity. He finally found what subsequently proved to be the appendix, which he at first thought was the enlarged band of the longitudinal muscular band of the cæcum and ascending colon. Not finding the appendix elsewhere he finally came to the conclusion that this was the appendix and took it out. It was behind the cæcum buried under the peritoneum. It was very small, there was no rupture along its course, and looking it over after the operation there did not seem to be anything the matter with it. The right tube and ovary had several flakes of pus upon them and the tube looked rather red and inflamed. He took out the right tube and ovary, closing the abdomen above and draining through the vagina. Looking over the ovary and tube later, they were apparently normal. He did not know where the pus came from. Fourteen days later the patient was perfectly well and sitting up.

UTERINE FIBROID COMPLICATED BY PREGNANCY.

Dr. A. M. Judd stated that a patient came into his service at the Kings County Hospital the early part of January with a history that she was pregnant. She had not menstruated since the previous August. Five days previous to her admission, while carrying a hod of coal up the cellar stairs, she began to have genital bleeding, and it continued until the admission to the hospital. When the speaker saw her he came to the conclusion that it was a case of inevitable abortion in a five months pregnant uterus. She had a temperature of 101, tongue coated, skin dry, and the flow from the vagina had a rather nasty odor. He had the vagina packed that night, hoping that she would deliver herself, and on the next day he attempted to empty the uterus. He tried Pomeroy's bags, but could not get them beyond the internal os.

This patient presented all the external signs of pregnancy—she was a primipara. There was no fetal heart or fetal movements, however. He abandoned emptying the uterus that day and packed the cervix, hoping labor would be brought on. The following day he attempted the same thing again with no result. The next day he tried it again, and not succeeding in dilating he made the Duhrsen incision, and thought he would empty the uterus in that way, but he could not get beyond the internal os, so he was driven to go into the abdomen, and took away this tumor which extended transversely across the abdomen. Its origin was by a small pedicle attached in front, at junction of body and cervix, and it had the uterus firmly caught between itself and the promontory of the sacrum, which explained the reason for his not being able to get any further up in the uterus. He took away the tumor in its entirety, leaving the uterus; the incision in the anterior vaginal fornix he did not close up. He separated the peritoneum and sewed up the incision in the uterus by an over-and-over suture as far as he thought best; he left good drainage, and put drainage gauze into the uterus extruding through the vagina. The sutures were taken out on the tenth day. She recovered.

POST OPERATIVE AND PUERPERAL TETANUS.

Dr. Charles Jewett gave the following account of a case reported by Martin. (*Zentralbl. f. Gyn.*, April 7, 1906.) The patient was a woman 37 years of age. An extensive plastic operation had been performed upon the anterior and the posterior vaginal walls, including a vagino-fixation. The aseptic preparation had been carefully carried out. Tetanus developed on the fifth day after operation. One hundred units of tetanus antitoxin were given by injection and this was repeated later. It does not appear that the injection was intraspinal. Chloral and morphia were also administered. The woman died on the second day.

Mice were inoculated with secretions from the uterus and the vagina. Tetanus developed in twelve hours and one died in 32 hours, the others soon after.

The infection could not be referred to the suture material since the same catgut had been used in other cases in which no trouble followed. The bacilli were believed to have been present in the vagina before operation.

Martin inoculated 100 mice with the vaginal secretions of pregnant and non-pregnant patients as they entered the hospital. No tetanus developed, but three of the mice died of sepsis. The organism found was staphylococcus aureus. The experiment is of interest as going to prove the possibility of puerperal septic infection from the vagina.

Tetanus after operation is rare. The author cites several cases from the literature. A few cases of puerperal tetanus have been reported. Aspell published a case of tetanus following myomectomy, in which the infection was attributed to the nurse, who had just left a case of tetanus.

BOOK REVIEWS.

Atlas and Text-Book of Human Anatomy. Volumes I and II. By Professor J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy at the University of Michigan, Ann Arbor. Quarto Volume of 194 Pages, Containing 204 Illustrations, Mostly all in Colors. Philadelphia and London: W. B. Saunders Company, 1906.

The aim of Professor Sobotta in preparing this work has been to make it as practical as possible, and adaptable to the use of medical students in the dissecting room; it is not, however, a text-book for the finished anatomist. In the American edition, Professor McMurrich, of the University of Michigan, has united the Text and Atlas, which were originally separate volumes, into one volume. It is essentially a descriptive atlas, the nomenclature being that adopted by the Basel Committee on Anatomical Nomenclature.

Vol. I is devoted to the bones, ligaments, joints and muscles; the illustrations are very profuse and are printed on heavy card, many of them being multi-color lithographs. There are, as well, many excellent half-tones.

Volume II is the immediate continuation of the first volume, and treats of the viscera and of the heart. The selection and mode of reproduction of the dissections are identical with those employed in the first volume. Typographical anatomy, as such, has not been specially treated, but in many instances, particularly in the regional illustrations, the method of presentation is necessarily of a typographic character. The illustrations in this volume are magnificent, being accurate and true to life in every respect.

Plaster of Paris and How to Use It. By Martin W. Ware, M.D., Adjunct Attending Surgeon, Mount Sinai Hospital; Surgeon to the Good Samaritan Dispensary; Instructor in Surgery, N. Y. Post Graduate Medical School. 12mo.; 72 Illustrations, about 100 pages. Surgery Publishing Company, 92 William Street, New York City.

Surgical Suggestions. By Walter M. Brickner and Ely Moschcowitz, of New York. Published by the Surgical Publishing Company, New York, 1906.

These two volumes are both meant for the instruction of the more inexperienced workers in the surgical field. The work on "Plaster of Paris and How to Use It," is a most useful book, and covers the various points of the subject, from the making of the bandage to its use as a support in every form of splint, corset or dressing. If those working in plaster of paris should carefully follow out the dictates of this book, their results would be more universally good. The little volume, "Surgical Suggestions," contains practical brevities in diagnosis and treatment. It is a collection of items or memoranda jotted down by a surgeon of some experience as maxims to be observed and stumbling blocks to be avoided by the less experienced.

The Practice of Obstetrics. In Original Contributions by American Authors. Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Gynecology in the University of Michigan, Ann Arbor, Michigan. Lee Brothers & Company, Philadelphia and New York. 1907.

The Practitioner's Library of Gynecology, Obstetrics and Pediatrics is completed by the volume on Obstetrics, edited by Prof. Reuben Peterson. This Library consists of three volumes; Gynecology, edited by Dr. Bovée; Pediatrics, edited by Dr. Carr; and Obstetrics, edited by Dr. Peterson. In the present volume, as in those which have preceded it, each section of the subject is considered by a separate author. The physiology of the normal process is first considered, taking up in turn the development of the ovum, pregnancy, labor, and the puerperium. Then follows the pathology of pregnancy, labor and the puerperium. Succeeding this is a section by Montgomery Crockett on "Obstetric Operations," and a section by Dr. Henry F. Lewis on "The New-Born Infant." Each author presents his own observations of the subject allotted to him, and the result is very satisfactory. The arrangement of the work is simple and logical. The illustrations are good.

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X-RAY DIAGNOSIS IN MEDICINE AND SURGERY.*

By CHARLES EASTMOND, A.B., M.D.,

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SUCCESS in skiagraphy or X-ray diagnosis is dependent upon two factors: the operator and the apparatus.

In considering the operator, it is not to be implied that he need be an electrician or a physicist, nor that he be particularly endowed with education or technical skill, but he must be one who is willing to spend many hours in trying, testing and experimenting, and ready to face all manner of failures and disappointments. The demands of skiagraphy are such that a man doing this work must devote his entire time and energy to it if he would place himself above the level of that large number of "dabblers" who, never having gone beyond the experimental stage, by their many failures and few successes, have brought unjust reproach upon the Roentgen Ray as a means of diagnosis. It is needless to add that in this, as in any other line of work, special training is absolutely essential, for technic is of the utmost importance, as upon it depends very largely the success or failure of the examination.

The apparatus is a most important factor, for in this work the old saying of the workman and his tools is reversed, as anyone with good equipment may, in time, obtain better plates than a skilful operator with inefficient apparatus.

Everyone can get good plates at times, but why not every time? The apparatus appears to be in perfect working order, what seems to be a good light is obtained and the exposure is made. Everything seems well, but when the plate is developed, it is thin and lacking in detail, or else it is so dark that it is impossible to distinguish even the bony parts, not to mention the detail of the softer structures that is so often desired. These are the classes of plates most commonly seen. But it is often desirable for a plate to present shadows that may be distinguished by others than the expert and to have them exist elsewhere than in the imagination of the one making the examination.

There are three separate and distinct parts of the X-ray apparatus—the coil, the interrupter and the tube. It seems as if there might be some arrangement into which these three could be brought that each would be in tune with the others so that the whole would work in perfect harmony. It is reasonable to suppose that if these various parts can be made to work in perfect unison, each doing its own share without jarring or conflicting in any way with the others, a condition will obtain that will afford the best possible results. The adjustment of the apparatus to this point of harmony is one of the preliminaries necessary for successful skiagraphy.

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*Read in part by invitation before the Brooklyn Surgical Society March 7, 1907.

It would be out of place here to discuss the various forms of X-ray apparatus and the means of tuning up, so nothing need be said on that subject. But with the whole apparatus in perfect harmony, there is obtained what may be termed the "Ideal Light." What briefly are its characteristics? That is to say, how may it be determined from the appearance of the tube that the result of the exposure will be a satisfactory plate, provided, of course, that the length of the exposure be correct? As to gross appearance, experience and a careful study of the tubes one is using alone will show. A new tube will not appear like an older one, and that in turn will differ from one that long usage has rendered almost opaque. No definite rules can be laid down. On the fluoroscope, however, this "Ideal Light" appears always the same. On looking at the hand, each bone is black, clear and distinct, with sharply defined edges. The outline of the soft tissues is clearly seen, and the extensor tendons of the thumb are visible at the wrist, while the remainder of the screen is brilliant green. But in spite of this brilliant fluoroscopic picture, the result on the plate is often disappointing.

In a series of experiments, the results of which were published in May, 1905, Dr. L. G. Cole of New York demonstrated that the X-light, as it issues from the tube is not homogenous, but consists of two sets of rays; the direct or true skiagraphic, and the indirect, the latter setting up secondary rays in the air, the tissues and surrounding objects. Roentgen recognized the presence of these secondary rays. Probably the easiest manner of demonstrating the presence of other than the true skiagraphic rays, which can be neither reflected nor deflected, is by the following simple experiment: A coin is placed on a photographic plate and above it at some distance is fastened a circular disc of lead of sufficient size to cover it completely, and thick enough to prevent the passage of any rays through it. After the exposure is made and the plate developed, there is found a shadow not only of the lead but also one of the coin. As no rays could pass through the lead, the shadow of the coin must have been produced by rays that passed around it or were set up in the air or some surrounding object.

If, then, it is the direct rays that afford the best skiagraphs, how may they be secured in the majority to the exclusion of the others? Various means of a mechanical nature have been devised, and while they are of considerable assistance, their use is not entirely satisfactory and it is now believed that the true solution of the problem lies in the *tube*, together with the perfect unison of the whole apparatus mentioned above. It has been estimated that a new tube of the ordinary type gives off as much as 80 per cent. of indirect rays, while in a very old one with dark purple anterior and brown posterior hemispheres, the percentage may be as low as 20 to 25 per cent (Cole). It is certainly the experience of many operators that, contrary to general opinion, an old tube affords results that cannot be obtained with a new one. There is, however, probably far more than this to the problem. An American firm has recently been making tubes the glass of which is only about one-half the thickness of that of the tubes generally used, and these give off far fewer indirect rays than the older types, so it would seem that the amount of resistance of the glass to the emerging rays may bear some relation to the number of indirect rays produced.

It has seemed worth while to discuss this question of the different forms of rays, for if one is to do more than the diagnosis of simple fractures and dislocations or the location of foreign bodies in the thinner parts, and attempt the more difficult problems of chest and abdominal examinations or even shoulders and hips, it is absolutely necessary that everything possible be done to secure an abundance of true skiagraphic rays.

Of fractures, dislocations and the location of foreign bodies, nothing need be said, as physicians generally and even the laity are more or less familiar with skiagraphs of these conditions and appreciate their value, especially in injuries involving the joints, but it might be added that it is often just as important to have a plate after the reduction of a fracture or dislocation to show the relation of the parts as it is to make the diagnosis, not only for the welfare of the patient, but also for the protection of the surgeon attending the case and responsible for the result.

In the diagnosis of renal, ureteral and vesical calculi, the X-ray, in competent hands, affords a most important and valuable aid, but for the examination of these cases, as perhaps of no others, the apparatus must be in its best condition and there must be a preponderance of direct rays. There are other means of diagnosing renal calculi without relying on certain clinical symptoms, but there is perhaps none that will fulfill all requirements so satisfactorily as the X-ray plate. The wax-pointed bougie of Dr. Kelly may show the presence of a calculus and give some idea of its position, but a skiagraphic plate will show its location far more accurately, and in addition, what is often very important, the number and size of the stones, something scarcely possible with the bougie. Also there are a considerable number of cases in which the calculus lies outside the pelvis of the kidney, and in these the bougie would be of little service.

It is all very well to have distinct symptoms and on operation find the calculus—that is plain sailing; but there are times when there are symptoms simulating those of stone, but on operation none is found. This is an experience that nearly every active surgeon has had. An X-ray plate carefully taken and properly interpreted will enable one to make a negative as well as a positive diagnosis, and the percentage of error is probably less than that of any other known means. It is absolutely essential, however, that before any diagnosis, especially a negative one, can be made, the following details must be present on the plate:

1. The lumbar vertebræ with their transverse processes clear to the tips.
2. The 12th rib, preferably both the 11th and the 12th.
3. The psoas muscle.

It is rarely possible to obtain these details on a single plate of the abdomen, and it is therefore necessary to use the compression diaphragm on all abdominal cases, examining one segment at a time. The effect of this device is, as its name implies, to thin out the tissues through which the rays are to pass by compressing the part, and in addition, to render the tissues more or less anemic, a condition of great advantage, as the blood offers considerable resistance to the rays. It also shuts out many of the indirect rays and displaces the intestines from the field under examination. The result is a clearness and distinctness not to be otherwise obtained.

From the fact that the situation of the symptoms and the position of the calculus do not always agree and also that calculi are found where least suspected, an examination of the region presenting symptoms is not sufficient, and it is always best, if not indeed necessary, to cover the whole urinary tract. Frequently with symptoms on one side the cause is found on the other, and additional calculi are at times found far from the apparent seat of the disease. More than one case has been seen in which a stone was found not only in the suspected region but others in the other kidney, in one of the ureters or in the bladder, the second calculus giving rise to no symptoms. By taking a series of five plates, one of each renal, each ureteral and the pelvic region, it is difficult for any calculus of size to escape detection, and if one does, it is rather the fault of the operator than of the method of diagnosis.

However, the skiagraph is only a shadow picture which presents a contrast of densities in the part examined, and errors of interpretation of the plate may occur. A few months ago the writer examined a patient who presented marked symptoms of renal calculus and gave the history of having passed a calculus some months previously. The skiagraph presented all the necesary detail and in addition there was a fair outline of the kidney. Over the kidney shadow was a small circumscribed shadow denser than the surrounding kidney. This was interpreted as a soft phosphatic mass and an operation performed; no calculus could be found, but external to the pelvis, corresponding to the shadow on the plate, was a mass of fibrous tissue. This illustrates a possible source of error and one that is hard to overcome. Similar mistakes may occur in cases of old abscesses which have discharged and contracted down to scar tissue, unless great care is taken.

It is believed that under ordinary conditions a normal kidney will not cast a shadow of any marked degree, but if it be sclerotic or congested from any cause, it is possible to determine its shape, size and position. This affords a valuable aid in clearing up doubtful cases of movable kidney, also in determining the size and number of the organs when it is proposed to remove one of them for disease, for it would seem that if one of them be disabled, the additional work thrown on the other would cause it to become sufficiently pathological to appear with distinctness on the skiagraphic plate.

For calculi or tubercular deposits in the ureters, the same detail must be present as for the kidneys, except that instead of the last ribs, the crest of the ilium should be visible. Many cases presenting symptoms pointing to renal difficulty are in reality ureteral, and in the X-ray there is an important aid in making the differentiation so essential when operative procedures are under consideration.

Calculus of the bladder is of frequent occurrence. Surgeons are more or less familiar with the cystoscope and the searcher, but the latter is not always reliable depending as it does upon the sense of touch with the large amount of personal equation involved in it, while the former causes a great amount of discomfort to the patient, especially the male, making an anesthetic at times necessary. A plate for vesical calculus should show the sacrum and coccyx, the pelvic outlet with its bony margin and preferably the symphysis pubis, although this last is not necessary. This will also cover the lower ends of the ureters, a not infrequent seat of trouble.

A difficulty of interpretation encountered in these plates is the occasional presence of small shadows in the region of the lower ends of the ureters. Whether these are phleboliths or deposits in the muscles or ligaments of the pelvis cannot be stated with certainty, but as a rule little difficulty is experienced in differentiating them from calculi in the ureters.

In all these cases the use of the rays causes but slight temporary discomfort to the patient, is reliable and absolutely safe as there is none of the former fear of a "burn" from the exposure which, with modern methods, has been reduced in a majority of the cases to less than one minute.

The diagnosis of renal tuberculosis and pyelitis are newer developments, and its absolute value is probably not yet fully determined, but with good skiagraphs the diagnosis has been made, and confirmed in those cases coming to operation.

Another problem in abdominal diagnosis of interest to physicians is the determination of the size, position and motility of the stomach, especially where gastroptosia is suspected. This may be carried out according to the method of Holzknecht and Hulst. By giving a meal containing bismuth and then taking a skiagraph with the patient in the upright position, a distinct shadow of the stomach is obtained in its relation to other parts of the abdomen; another with the patient in the horizontal position determines its size. A subsequent examination some hours later makes possible the estimation of the activity of stomach motility, and, if desired, the bismuth mass may be followed throughout the whole intestinal tract, affording information of any part that one may wish. Where the examination is to be of the lower end of the intestinal tract, the bismuth may be introduced through a rectal tube.

The exact status of gall-stone diagnosis by means of the X-ray has not as yet been absolutely ascertained. Numerous observers have demonstrated them at times but they have also been missed, to be found later at operation. Of six cases that the writer has examined, a shadow was obtained in only one and the findings later confirmed. Three of the others did not present marked symptoms, and other diagnoses were later agreed upon. In one of the others, the symptoms were characteristic, but no shadow could be obtained and to the best of the writer's knowledge, the certain diagnosis remains in doubt; while in the final case, with a positive clinical diagnosis of cholelithiasis, no shadow could be obtained, and on operation, no calculi were present.

When one considers the anatomical relations of the gall-bladder, and the fact that gall-stones are composed largely if not entirely of cholesterin which absorbs the rays to a very slight degree, the difficulty of diagnosis is apparent.

The early diagnosis of pulmonary tuberculosis is often extremely difficult. But in recent years the X-ray has entered this field with very gratifying results. Here is obtained a definite picture of the lesions in the lungs, a permanent record of the condition at the time the plate is taken, and by making exposures at intervals it may be determined whether the process be active or not, and, also, the effect of the different systems of treatment noted. It is now possible to make the diagnosis long before consolidation has taken place, for in many cases there is found to be a thickening or infiltration of the lung tissue without discernible physical signs; and on the other hand, there are cases with pronounced physical signs that do not show the amount of tissue involvement that one would be led to suppose. There are many patients encountered who are termed "tubercular," but without physical signs in the chest. These should have an X-ray examination so as to receive the benefit of the earliest possible diagnosis. On the other hand, definite information as to the extent of the lesion in the chest should be obtained before a patient is condemned to leave his home and business for some health resort or a change of climate.

In connection with chest conditions, it will suffice merely to mention pleurisy with effusion, empyema, abscess of the lung, aneurisms of the aorta, deviations and compression of the trachea in goiter and œsophageal diverticula as conditions readily recognizable on the skiagraphic plate.

Examination of the accessory sinuses of the head is a recent attempt at X-ray diagnosis in some of the special fields, and the results have been very satisfactory. By this means, the size and condition of the frontal and maxillary sinuses may be determined to an acurate degree and the presence of foreign or pathological material demonstrated.

Bone diseases is a subject about which comparatively little is known from a skiagraphic standpoint. Periostitis and osteo-myelitis often present very similar clinical symptoms, but they have very different aspects on the X-ray plate and may be easily distinguished. Of periostitis, plates of cases of long standing and those of what have seemed to be of acute attacks have been compared and studied, but from the little evidence obtainable, they cannot be differentiated. They both show merely an enlargement of the bone, rough or smooth, without any apparent change in the medulla. This enlargement in simple cases is perfectly clear, but just so soon as any breaking down has occurred, there are darkened areas; a mottling or a single dark spot. It would be interesting in these cases to know if an acute condition could be differentiated from a chronic one, and also if there is a different gradation of shadow with different causative factors — traumatic, syphilitic and tubercular.

In osteitis and osteo-myelitis also, the simple cases may be separated from those that have broken down, the simple being characterized by a thinning of the bone substance as evidenced by the darker shadow as compared with the normal, as against the black area of an abscess; but it is impossible at present to state if the process be an active one or not or to determine from the skiagraph the nature of the causative factor. The X-ray plate allows the diagnosis to be made when there is but little involvement, and it also presents the full extent of the lesion, an important guide to the surgeon at the time of operation.

Bone tumors are easily recognized, especially exostoses, which show practically no structural differences from the normal, but it is scarcely possible at the present time to make the absolute diagnosis of malignant tumors of the bone as such. The writer has seen the plates of several cases in which the clinical diagnosis of osteo-sarcoma had been made, and in all the X-ray picture was the same—an almost uniform enlargement of the whole bone with numerous areas of thinning, giving the whole a honeycomb appearance. Unfortunately none has come to operation, and so the positive diagnosis is in doubt, so far as can be learned.

Just a word now in regard to fluoroscopic examinations and their value. In the first place, few men who are doing much X-ray work are willing to expose themselves to the full range of the rays, as is necessary in such examinations, because of the physiological effects; and in the second place, the use of the fluoroscope is always more or less unsatisfactory because of the inability to maintain for even a short time the proper relation between the tube, the part under examination, and the eyes of the observer. In addition, the personal equation is a very strong factor, and such a diagnosis rests entirely upon the word of a single individual without his being able to produce any evidence of the honesty of his examination.

In the lighter parts of the body, the arm, leg or neck, it is possible to determine the presence of foreign bodies, and often the existence of fractures; in the chest, obliteration of the costo-diaphragmatic angle on deep inspiration and the presence of aneurisms of the aorta. But it is difficult to estimate the exact position of foreign bodies in such a way, and the existence of fractures may not always be apparent, as many that have not appeared on the fluoroscope have been revealed later on the skiagraphic plate. Dislocations are rarely discernible, and for examinations of the head, hip, shoulder, or abdomen, the fluoroscope is absolutely useless, for the photographic plate will present shadows not obtainable on the screen as interpreted by the human eye.

In conclusion, the following may be presented as the range of X-ray diagnosis in medicine and surgery:

The detection and location of foreign bodies.

The diagnosis—

1. Of fractures and dislocations.
2. Of urinary calculi, positively and negatively.
3. Of the size and position of the stomach.

4. Of biliary calculi in favorable cases.
5. Of pulmonary tuberculosis and other chest diseases.
6. Of pathological conditions in the sinuses of the head.
7. Of diseases and tumors of bone and their extent.

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THE PRESENT STATUS OF RADIO-THERAPY.

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SUFFICIENT time has elapsed since the discovery of the X-ray and its application in medicine to enable one to determine whether radio-therapy is of any value or not. The moment Freund published his results in treating hypertricosis the profession at once hailed radio-therapy as the long-looked for panacea for incurable and obstinate diseases; and soon the medical journals teemed with reports of cures that were little short of miraculous; indeed the pendulum swung so far over that the more cautious and conservative of the profession lost faith, and many even doubted that any good could be derived from the ray.

The reaction against the effect of the ray once started, has grown so rapidly that there is danger of the pendulum swinging too far in the opposite direction. To one calmly viewing the situation it would seem but right to try to put this vaulable therapeutic aid in its proper place; to do this it might be interesting to review, briefly, the history of the ray since its inception; then, the causes of the frequent failures and disappointments in its use are easy to find.

At first any one having a static machine or coil capable of energizing a vacuum tube considered himself able to attack and cure all or any disease, and the record of the disastrous results are too well known to need any further comment.

Failures and accidents created the desire for perfected apparatus and improved technique, soon the energizing machines were improved, different varieties of tubes were devised, and appliances for the protection of the patient and the operator were invented.

But it was not long before the practical X-rayist found that with these improvements there were still many things lacking to make the therapeutic application of the ray accurate and safe, and this fact soon brought out a number of appliances to aid in determining the accuracy and efficiency of radio-therapy.

The first instrument of accuracy was the spintermeter of Beclere; this is an adjustable spark gap with a graduated rod arranged to enable one to read the length of spark necessary to energize a tube.

The next device of importance was the radio-chronometer of Benoist; this tells, fairly accurately, the degree of penetration a tube possesses.

The next was the chromoradiometer of Holzknecht; the device consists of a number of pastels arranged in a scale ranging from three to twenty-four; this device is intended to measure the amount of ray the skin and tissues will absorb.

The pastels of Sabaouraud and Norrie are similar to the scale of Holznecht; they are all composed of some mineral salt that changes color when exposed to the action of the ray.

While all of the above mentioned

devices are valuable aids to the radio-therapist, they are not by any means perfect, and one who has occasion to observe the vagaries of the X-ray is inclined to say that the best of them are only steps in the right direction. For if one considers the complex character of the X-ray and honestly realizes how little he knows of the effect of the secondary rays, and how little is known of the action of the ray during its passage through the tissues, he is confronted with the fact that there is still a great deal to learn about radiology.

Now assuming that the would-be radio-therapist possesses all of the improved machines and appliances, what else is necessary for his success in this line of therapeutics?

First, experience; *second,* some knowledge of what the ray will and will not do; *third,* the diagnostic skill to enable him to tell what diseases and when they will or will not be benefited by the X-ray.

The first requisite, experience, can be gained only by long and careful study of the physics of the Roentgen and the allied rays, and the observation of their effects upon living tissue.

If one has the required experience he soon learns the vagaries and peculiarities of this little understood force.

To acquire the third requisite, diagnostic skill, anyone using the ray for therapeutic purposes, expecting to get results that will be credited by the alert, observing profession should have had considerable training in medical and surgical diagnosis and therapeutics. The practice in vogue with many, of delegating the operation of the ray to a layman or an experienced physician, cannot be too strongly condemned. To avoid accidents and failure, and above all to enable one to make absolutely accurate reports, the physician must apply and observe the action of the ray himself.

It is good to read the literature of the subject, but many of the reports should be taken with a grain of salt, for even now, when we have learned, to a certain extent, the rays' limitations, there are reports that have caused one expert radio-therapist to remark that some users of the ray are either "radiomaniacs or radiografters."

Before proceeding to discuss the diseases that are cured and benefited by the Roentgen rays a line should be devoted to the theories of the action

They do not act through systemic absorption, but are simply local stimulants, accelerating metabolism, thereby aiding nature in combating and eventually eliminating the disease. This stimulating action should be taken advantage of, and the ray applied at the proper physiological moment, or, in other words, at that stage of the disease when the healthy cells are capable of being stimulated to fight the onslaught of the disease. If, however, the system or tissues are worn out by continued illness, or the ravages of local disease, the rays not only do not help, but may even be the means of hastening the final outcome.

When radio-therapy has been most successfully studied in those diseases belonging to the domain of dermatology, it has been used with varying degrees of success in nearly every other incurable or intractable disease. Some of the general diseases benefited are leucemia, pseudo-leucemia and splenetic anemia. With the improved technique the results in all three have been exceedingly gratifying, and it is safe to assume that further study of the subject will place radio-therapy high up among the curative measures for these ailments.

Tuberculosis of the glands, bones and joints is another group that has benefited by this measure. In bone and joint tuberculosis it accomplishes more than the old method of rest and fixation, for the cures are as frequent, and the results are far better; for by the old method the joint was left stiff, while in treatment by the ray the joint is usually movable and altogether useful.

In tubercular adenitis without ulceration the enlarged gland will greatly diminish in size and frequently disappear altogether.

If the process has gone on to ulceration and the gland has broken down with sinus formation, the effect of the ray is more than satisfactory, for it will, usually, entirely cure the disease even in cases where repeated operations have failed; and the cosmetic effect upon the scar is far superior to that of any other method.

Internal tuberculosis of the lungs and abdomen should not be treated by the ray, for it is generally conceded that it does little or no good. At this point it might be well to emphasize the fact that the X-ray must not be used to the exclusion of other well-known and tried means, be they surgical or medical. If this is kept in mind the Roentgen rays will take their place as a valuable therapeutic adjunct.

The use of the X-ray in nervous diseases is still under observation, but there is enough authentic testimony as to its efficiency to place it among the means of cure and amelioration in many neurological disorders.

The subject of the treatment of cancer by the ray has caused much discussion, adverse and otherwise; and on account of this discussion we are in a position to state in positive terms what it will do, and what the physician should do when he is called upon to treat a case of cancer of any kind, be it operable or inoperable.

In sarcoma good results can be expected if the diagnosis has been made early and there are little or no metastases; the tumors frequently grow smaller and even disappear, the mass having undergone colloid degeneration; the pain is always lessened and many times relieved entirely.

As the results from X-ray in this malignant disease are, on the whole, as good as those from surgery (often of the most extensive and radical kind), the question arises what is the proper procedure?

From the accumulating weight of experience it would seem that the X-ray would win out.

In carcinoma of the internal organs the results are very uncertain; in many cases it seems to inhibit the growth of the tumors, and as this is all that the most radical surgery does, it would seem that to expose a patient suffering from an incurable abdominal or thoracic disease to the ray would be preferable to subjecting him to a serious surgical operation; the same remarks apply to pelvic growths; the X-ray will seldom if ever cure, but it many times seems to prolong life, and we as physicians should give the patient the benefit of the doubt.

Carcinoma of the breast can be cured by the ray, if seen early; for it is a demonstrable fact that after a certain number of exposures the lymph channels are degenerated into fibrous cords, thereby blocking off the diseased area from the general system.

This being the fact, is it not proper to subject the patient to anti-operative raying?

If the carcinoma is seen late in its course and extensive metastases are present, the most radical surgical operation should be done, followed by thorough application of the ray; this will, many times, prevent recurrences by removing the minute foci of cancer cells that have necessarily eluded the knife.

In cancer of the skin, epithelioma and rodent ulcer, some brilliant results have been achieved. Surgical procedure is to be advised, if the epithelioma is small and incipient, if there is considerable glandular involvement, if the growth is on the lip, the deep tissues of the cheek, or with involvement of the mucous surfaces.

The ray is applicable in cases of rodent ulcer, epithelioma with large cutaneous involvement, inoperable cases and after operation.

The action of Roentgen rays in the treatment of diseases of the skin has been studied by the masters of dermatology until it is almost definitely settled what cutaneous diseases are benefited by its use. Space will not allow me to enter into a detailed account of its use in dermatology, but only to briefly review some of the more prominent diseases in which it has been employed with more or less success.

It is not a very satisfactory treatment for hypertricosis, because of the length of time it takes to complete a cure, and of the danger that accompanies its prolonged use.

It is especially useful in indurated acne, and chronic eczema.

Its action in psoriasis is very similar to that of other treatment, often its effect is magical, and again there seems to be no change at all. Still, in psoriasis it should be used for its stimulating effect.

The reports of its effects upon mycosis fungoides and leprosy are very gratifying, especially so of mycosis fungoides.

Pruritus, general or local, can be relieved by a short exposure to the ray. Caution should be exercised in its application in cases of pruritus of the anus and scrotum, for it should not be forgotten that sterility can be caused by the ray.

There are many other skin diseases that under certain circumstances are benefited by the ray, and every well-equipped and up-to-date cutaneous specialist should include radio-therapy in his armamentarium.

In conclusion it might be well to emphasize a few points:

The X-ray is a valuable therapeutic adjunct in competent hands, but it is capable of doing great injury if improperly administered; and the medical profession should learn that every one owning an X-ray is not a radiopathist.

The action of the ray is uncertain upon some diseases, and many disorders and conditions can be aggravated by it.

Its great usefulness is in the treatment of certain skin diseases, and surgeons should employ it more, both before and after operations.

The final conclusion is that the X-ray, instead of waning, will continue to brighten and be a valuable therapeutic aid.

47 Halsey Street.

X-RAY TREATMENT OF TUBERCULAR LESIONS: WITH REPORT OF CASES.

By **PAUL PILCHER, A.M., M.D.**

Surgeon to the Methodist Episcopal Hospital; Cystoscopist to the Jewish Hospital.

MUCH has been written concerning the X-ray treatment of tuberculosis of the lungs, but as yet the efficacy of such treatment has not been proven. Of the more superficial forms of tuberculosis, such as that which involves the skin, the superficial glands, and the more accessible portions of the body a great deal has been accomplished. In lupus vulgaris it is the treatment of choice, and almost all of the cases if properly treated result in cures. It must be remembered, however, that when a general tuberculosis is present, the reparative powers of the body are so deficient that even the most superficial and seemingly trivial of its manifestations may not be at all affected by exposure to the X-rays, and such failures should not condemn its trial in other cases. Again, the quality of the ray used must be considered. In my own work a soft tube was used for superficial diseases, while tubes of higher vacuum were used for the cases in which the deceased involved the deeper structures. The additional aid of artificial fluorescence is considered of value, and in some of the cases five to ten grains of quinine have been given one hour before the exposures.

Various writers have reported beneficial effects in the treatment of tuberculosis of the joints, tubercular sinuses, and even in tubercular peritonitis. In this paper I wish to present a few selected cases, which will demonstrate its value in some other allied conditions.

CASE I.—Frances M., patient previously operated upon a number of times for tubercular lesions involving the skin and superficial structures of the right arm and right leg. Two months before admission there remained, after an operation, an unhealed and sloughing sinus on the inner side of the ankle; since then the sinus and unhealthy area has continued to enlarge and to discharge freely. January 23, 1903, an attempt was made to entirely excise the diseased tissues; the condition improved, but did not heal. February 23, 1903, a second operation was done, but the healing was not progressing satisfactorily; at the same time a portion of the scar of a previous operation on the leg broke down and presented the signs of a sloughing tuberculous area. Microscopical examination of a section removed from one of the diseased areas showed the typical picture of tubercular tissue; no tubercle bacilli could be demonstrated. Both areas, the ankle and the leg, were subjected to X-ray exposures, averaging ten minutes, three times a week. The lesion on the leg healed after five exposures. At first, the lesion of the ankle did not appear to be much affected by the treatments; in fact, at times there was an increase in the inflammatory processes, due to the ordinary pus micrococci, and not due to the exposures. After the inflammatory processes had subsided, the wounds healed readily and the skin lesions disappeared.

The case represents a class of cases in which the superficial, and many times the deeper structures, including the tendons and their sheaths, are invaded by a tubercular process in which the tissues quickly become necrotic and slough, leaving a large, unhealthy, tubercular ulcer or sinus which will not heal. In this case the ulcer on the leg healed quickly, whereas the ankle, which was much more deeply and extensively involved and infected, took a much longer time to react. Between the treatments, the tuberculous area of the ankle was drained with iodoform gauze.

CASE II.—John Ross. March 3, 1903, operated; portion of left epididymis resected; right testicle and epididymis removed; vas deferens dissected out from inguinal canal, right side, and removed. Microscopical examination showed all the tissues removed to be the seat of tubercular disease. On the right side it was evident that all of the diseased tissues had not been removed. March 19, 1903, discharged with all wounds healed. April 24, 1903, was again admitted to hospital. One week previous to admission the wound in the right inguinal region had broken down, and upon admission presented an unhealthy, sloughing area 8 cm. long and 2 cm. wide. A probe passed inward and backward in the direction of the bladder for a distance of four inches. X-ray exposures were given three times a week, soft tube, eight minutes. The superficial tissues cleared up to some extent, but after twelve treatments the general condition did not appear to be much improved. Then a higher tube was used with a stronger current; after six exposures there was marked improvement, the sinus was reduced to 3½ cm. in depth, and the superficial ulcerations were entirely healed. The skin at this time was deeply pigmented. The exposures were continued every other day, and the sinus was injected once a week with equal parts of carbolic acid and tincture of iodine. After eighteen more exposures the disease had entirely disappeared, and as far as is known, the case has remained cured to the present time.

This is an example of a sloughing tuberculous sinus which originated from the diseased vas deferens and extended deeply into the pelvis. At first, only the superficial tissues were affected, due to the softness of the tube used, but the deeper tissues reacted quickly when a higher tube, that is, a tube of deeper penetration, was used. The carbolic and iodine were used to stimulate the growth of healthy granulations.

Case III.—H. K. was recently operated on for tubercular cervical lymph nodes of both sides of the neck, extending from the mastoid process to the clavicle. On both sides of the neck and under the jaw were numerous ulcerating areas, varying in size from 1 cm. to 10 cm. in length, and from 1 cm. to 3 cm. in width, from some of which unhealthy sinuses led under the skin to varying distances. The ulcerations, as a rule, are of unhealthy appearance and discharge thin yellow pus. There is tuberculosis of both apices of the lungs. The axillary glands are enlarged.

X-ray treatments were given three times a week, but aside from a seeming temporary improvement, the case became progressively worse and died within a few weeks, with pulmonary and intestinal involvement.

The case represents simply a class of cases which are beyond all treatment. The tissues have no reparative powers, and when such is the case, be the processes tubercular, or carcinomatous, or sarcomatous, X-ray treatments are useless and sometimes harmful. We have a case now under observation in which there is such a general tuberculous disease involving the cervical lymph nodes, Fallopian tubes and peritoneum, that operative interference is contra-indicated, and X-ray exposures had to be stopped because each exposure was followed by a rapid rise of temperature and an increase in all of the symptoms.

Case IV.—T. C., two months previous to beginning treatments, had undergone an extensive operation for removal of tubercular lymph nodes which extended from the mastoid process of the temporal bone down to the clavicle on the left side of the neck. One month previous to admission was discharged from hospital cured, with all wounds perfectly healed. One week ago began to notice swellings and tenderness along the scar, evidently a recurrence of the tubercular disease. X-ray exposures were given three times a week, ten minutes each; soft tube. In a few days the wound broke down and discharged freely. The diseased tissue presented a sloughing, necrotic and decidedly unhealthy appearance, and involved an area 10 cm. long by 3 cm. wide. Treatments were continued tri-weekly, and after fifteen exposures the diseased tissue had entirely disappeared, leaving a smooth, even scar. Four months later an enlarged gland appeared just above the clavicle on the right side of the neck; it broke down and discharged freely, but did not heal. All the ordinary methods of treatment failed to heal the ulcer. X-ray exposures were given as before, with the result that after five treatments no signs of the disease remained.

In this case the X-rays certainly had a very beneficial effect, and brought about a complete recovery after the ordinary methods of treatment had failed.

Case V.—G. F., recently operated on for chronic osteomyelitis of inferior maxilla. Sub-acute tuberculosis involving the apices of both lungs. Three weeks ago a broken down tuberculous gland, just above the clavicle, was incised and curetted; no repair of the tissues took place, and the diseased area increased in size until at present, time of admission, there appears a sloughing ulcer about the size of a silver dollar, with overhanging edges; a sinus extends about 3 cm. along the upper border of the rib. In the supra-clavicular space is an enlarged gland about the size of an almond, tender to the touch. Five X-ray exposures were given each week, six minutes each, with a soft tube at a distance of 22 cm. At first, the improvement was slight, and not until a distinct dermatitis was produced did any marked change show itself. This took place after twenty-five treatments. The ulcer gradually closed in and after thirty-three treatments was entirely healed, and no trace of the enlarged gland could be found. The lung condition seems much improved, but certainly is not cured.

Case VI.—Man, aged 30. History of an inflammatory lesion of right buttock, which had been operated upon a number of times without being cured. An examination revealed an indurated area beneath the skin two or three inches in diameter, the tissue being irregularly involved and producing numerous small nodules which seemed to involve the muscles beneath. The diagnosis of tuberculosis of the underlying structures was made. Case was recommended for X-ray treatment, and the disease entirely disappeared after a few exposures to the X-rays. This is a form of tubercular infiltration without superficial ulceration, but which operation failed to eradicate.

Case VII.—Man, aged 34. Referred by Dr. G. R. Butler. On the arch of the left foot were present two large, punched-out ulcers with overhanging, undermined, inflamed edges; the base was formed by granulations. One ulcer measured 1⅝ by ¾ inches; the second ulcer 1 by ⅝ inches. The entire foot was swollen and there were numerous areas of tuberculous infiltration. The ulcers had been treated surgically for over six months without any improvement whatever; they were given the benefit of the radiance from the Roentgen tube, and after the third exposure of five minutes, a marked improvement was noted. After about twelve exposures the ulcers were entirely healed, there was very little scar tissue evident, and the patient has been entirely free from any disease of the foot since that time, a period of two years.

The above cases demonstrate very clearly the efficacy of the X-ray in the treatment of these diseases. The cases must necessarily be selected, as is true, also, of the treatment by X-rays of any other diseased tissues. To expect a result in a case where a patient is so thoroughly septic from tubercular disease that he is rapidly losing in weight and flesh and has absolutely no resisting power, is absurd; but in a case where the patient is otherwise healthy, where the tissues are able to react if they are but given a chance, in such cases we can almost surely promise prompt recovery by the use of the X-rays. I have found it far more satisfactory in this class of diseases than in carcinoma and sarcoma. I have at present under my care some cases of tuberculosis of the bladder, and, as is well known in this dread disease, notwithstanding all measures which have as yet been devised, the disease becomes progressively worse. It is hoped by a combination of cleanliness, stimulating treatment, hygienic treatment and the judicious use of the X-rays, to accomplish a cure of this disease. After this method has been tried for some time, a further report will be made concerning it.

THE TREATMENT OF INEVITABLE AND IMCOMPLETE ABORTION.

BY JOHN OSBORN POLAK, M.Sc., M.D.,

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In treating this subject I will confine myself to the consideration of those cases of abortion occurring before the beginning of the fourth month.

An abortion is inevitable when hemorrhage occurs and persists and the ovum loosens and descends into the lower segment of the uterus, or protrudes at the external os, or when part of the chorion or liquor amnii escapes. Before instituting treatment, it is always desirable to determine when a threatened abortion becomes inevitable; this may be done with a fair degree of certainty, after establishing the existence of a pregnancy by the history, mammary and pelvic signs, by noting the following symptoms and physical signs: The rythmical uterine pains associated with sacralgia and pelvic tenesmus, the chilliness or chills, the nausea or occasional vomiting, together with vaginal hemorrhage are the classical symptoms of a threatened abortion. Never treat a patient with such a symptomatology, without first making a careful pelvic examination, in order to exclude the possibility of an ectopic pregnancy. If the patient is actually aborting, the uterine contractions are present and increasing, the uterus is hard and contracted from tetanic spasm or alternately hard and soft, the cervix is soft, open or dilating, the ovum protruding or the utero-cervical angle effaced by the obliteration of the internal os, due to a descent of the ovum. This is a positive sign when the abortion occurs in an anteflexed or retroflexed uterus. When these signs are present together with persistent and increasing hemorrhage, the ovum cannot be saved.

During the first three months the ovum is usually expelled as a whole or broken up, with more or less hemorrhage. After the third month the delivery corresponds more closely to the course of labor at term, there being the stages of dilation, expulsion and placental delivery as in actual labor.

This fact, as well as proper understanding of the pathological possibilities of an abortion must be appreciated before any line of treatment is adopted.

Every abortion has several pathological possibilities. There may be complete emptying of the uterine cavity, of its entire contents, i. e., the decidua vera, the decidua reflexa, the amnion, the chorion, and the fetus. This only occurs in the early weeks of pregnancy. Or the fetus may be expelled with the amnion and chorion, while the *decidua vera is left within the uterus.* Thirdly, the fetus may be expelled and the amnion and chorion remain in the uterus. Or when the gestation is a little further advanced the fetus and membranes may be expelled and the placenta left behind.

The management of an inevitable abortion, therefore, must meet and fulfil the following indications, i. e., the control of hemorrhage, the avoidance of sepsis, the complete evacuation of the uterus, and its proper retraction and involution. To do this the uterus must be emptied of its entire contents, with the least possible trauma under the strictest asepsis.

The plan which I have followed, with some success, when an abortion is inevitable, is to administer a quarter of a grain of morphia hypodermatically. This relieves the pain, but does not arrest the contractions, while it does relax the dilating cervix and hasten the labor. The hair is next clipped from the vulva and the pudendum cleansed with green soap and warm water, using a pledget of cotton wrapped in gauze as a scrub. The cleansing extends to the pubes, lower abdomen, and the inner surfaces of the thighs. The parts are then bathed with a 2 per cent. lysol solution, and the patient placed in the Sims, or if I am without assistance, in the knee-chest posture, and a firm cervico-vaginal tampon of sterile or iodoform gauze applied. To introduce the cervical plug, the portio must be grasped and brought down with a volsellum forceps, and the cervical canal firmly packed; the cervix is then released and the uterus allowed to fall back in the pelvis, and the vagina is filled with gauze or sterile cotton by placing it about the cervix, in the fornices, distending the vaginal canal to its full capacity. Several three or four inch gauze bandages, which have been previously boiled, serve as excellent packing material. A tamponade thus applied, not only controls the hemorrhage, but makes the subsequent removal of the ovum easier, by completing its separation and dilating the cervix, thus facilitating the succeeding evacuation and minimizing the bleeding. Tamponning a patient in the dorsal position is an inefficient procedure, as it neither controls the hemorrhage completely, nor does it plug the passages sufficiently to effect a separation of the ovum.

This tamponade should be left in position for at least twelve hours, when it may be removed and the uterine contents evacuated by the forceps, finger and curet. I have come to consider a general anesthetic a necessary adjunct to good work. For the separation of the decidua from the uterine wall takes place from above downward, and is best removed by the curet, when the abortion takes place before the third month. When curettage is elected, it must be skilfully and carefully done under the most rigid asepsis, for no operation in surgery exposes the woman to greater danger from faulty technique. On the other hand, when the decidua is completely removed the convalescence is smoother and the post-abortal sequellæ are minimized.

After the third month, the aseptic finger serves as the best curet. Following such a curettage, the uterine cavity may be irrigated with a sterile saline solution, though for several years I have omitted this step, save in the presence of sepsis, and then the woman receives but one intra-uterine douche.

The uterus should never be packed after it has been completely emptied, except for hemorrhage, as an empty uterus drains itself better than tube or gauze can do it. It is my custom, however, to place a firm tampon of gauze in the vagina after curettement, and to leave it there for twenty-four hours. This pack stimulates the uterus to contractions and loosened débris and small clots are expelled which would otherwise remain within the organ for many hours; again, by raising the uterus in the pelvis a better circulatory equilibrium is established and nature has a better opportunity to effect her hemostasis.

Should it be necessary to tampon the interior of the uterus for bleeding a pack of iodoform or zinc oxide gauze is to be preferred; the gauze should not be left in the uterus longer than twelve to eighteen hours and then gradually withdrawn, so as to allow a clot to form, and replace the pack; this assures proper retraction of the organ and the control of hemorrhage. Sudden withdrawal of the intra-uterine tampon is occasionally followed by smart bleeding from the unsupported sinuses.

INCOMPLETE ABORTIONS.

An abortion may be considered as incomplete when any part of the ovum or decidua vera is left within the uterus. The diagnosis is to be made between ectopic, membranous dysmenorrhœa, and normal menstruation. It is, therefore, necessary to establish a diagnosis of a previously existing pregnancy, from the history, mammary signs, and the expulsion of some of the products of conception. The hemorrhage is usually persistent, but variable in amount; it is at first bright red, later dark brown, thick and offensive and associated with intermittent attacks of uterine colic, resembling after-pains. The lochia may contain shreds of decidua, amnion or rudimentary placenta; the os is more or less open and may be patent to the finger, and decidua, membranes, pieces of placenta and blood clots may be found within the cavity. The uterus is large and soft and involution is slow or absent.

Briefly, therefore, an incomplete abortion may be recognized by the bloody discharge, sepsis or failure of involution as instanced by the soft boggy uterus, the patulous cervix and the detection during the examination of fragments of the ovum. On the other hand if the abortion has been wholly completed, that is, if the entire uterine contents, including the hypertrophied decidua have been completely expelled, the uterus is firmly contracted and the os is closed. The management of incomplete abortions is purely surgical, for drugs have little or no effect on the expulsion of retained portions of the ovum. Hemorrhage, sepsis and adnexal inflammations, with their complicating sequellæ, can alone be controlled and avoided by prompt aseptic emptying of the uterus. Here again, as in the treatment of inevitable abortions, the strictest asepsis and the most delicate skill are necessary to evacuate the uterus without traumatizing the passages. No expectant plan of treatment has given any satisfaction; the situation should be explained to the family, as well as the dangers from the possible sequellæ and the necessary operation made.

The cases of incomplete abortion will divide themselves into those in which the cervix will admit the finger and those in which the os is not sufficiently dilated.

In the former class, with the patient under an anesthetic in the dorsal position on a table, the abdomen, thighs and vulva thoroughly cleansed with soap, warm water and a soft scrub, and the vagina disinfected by being gently scrubbed with a cheese cloth sponge on a pair of dressing forceps, the suds washed away with sterile water followed by a lysol douche, and the cervical canal disinfected with the tincture of iodine, the operator crowds down the uterus and fixes it with one hand over the abdomen, while with the other hand in the vagina, and a finger in the uterus, he digitally explores the entire cavity and any portion of a retained placenta or other fetal remains may be loosened and removed. While the manual method just described is safer for the practitioner, in general practice it is distinctly inferior to instrumental evacuation in the hands of the skilled pelvic surgeon or, in hospital practice, for there can be no question that the decidua vera is best removed from above downward with a large dull curet, even when the cervix will admit the finger. The combination of the finger and the curet in such cases is the ideal.

When the cervix will not admit the passage of the finger, as is the case in the early months, the patient should be anesthetized and placed in the dorsal position, after the usual antiseptic preparation, and the cervix exposed by a weighted or Sims speculum; the cervix is grasped by its posterior lip with a vulsellum forceps and the canal dilated if necessary with a steel branched dilator to a degree sufficient to permit the passage of a large dull curet (as the Munde instrument.) The cavity is then gone over systematically, beginning at the fundus with each stroke, and the loosened débris washed out with an intra-uterine douche of sterile salt solution, or if the pieces be too large to wash away, an Emmet placental forceps will be found useful to withdraw the fragments of ovum.

As I have previously stated, the uterus is never packed except for hemorrhage if the cavity has been completely emptied. Occasionally, however, we may be so unfortunate as to be unable to loosen pieces of adherent placenta or membranes with either the finger, curet or forceps, in which case these retained fetal products may be separated, without hemorrhage or trauma, by fixing the cervix with a tenaculum and firmly packing the interior of the uterus (the membranes or placenta still within) with strips of iodoform gauze, or if the case be septic, with plain sterile gauze moistened in a glyceride of formalin (Formalin M 30, glycerine 1 oz, water 15 oz.). The vagina is also tamponned with some non-absorbable sterile material. After such a tamponade a few doses of ergot will cause and maintain sufficient contraction to separate the adherent structures. At the end of twenty-four hours the gauze may be withdrawn and the detached placenta or membranes will be found presenting at the external os and may be readily removed with a pair of dressing forceps.

Too little attention is usually given to the after treatment of abortions. It is forgotten that it takes longer to complete involution after an abortion than following labor at term, yet this is the clinical fact. Again, more patients get up from an abortion or miscarriage with retrodeviation of the uterus, hyperplastic endometritis and adnexal inflammations than is the case after labor. These sequellæ I believe can all be prevented, first, by the proper aseptic evacuation of the uterus; second, by giving to the patient such after-care as will promote retraction and involution. Rest in bed for ten or twelve days is imperative. Douches should not be given before the end of the first week, and then a douche of sterile water at a temperature of 120° twice daily. There is some advantage, notwithstanding its inconvenience, in using the Davidson syringe for this douche, as the intermittent stream alternately flushes and depletes the parts. Following each douche, the patient should be taught to assume the knee-elbow position, which allows the uterus to rise up out of the pelvis by gravity and empty the venous plexuses in the broad ligaments. This change of posture further acts as a sort of massage for the ligaments. Before the patient is permitted to assume the upright position and walk, she should be subjected to a careful bimanual examination to ascertain the position of the uterus and the condition of the parametrium. For if there is a retrodeviation, now is the time for its correction. This may be readily accomplished, in the majority of cases, after placing the patient in the knee-chest position and introducing a Sims speculum into the vagina, by grasping the cervix with a double tenaculum by its posterior lip; the uterus is drawn down, almost to the vulva in the axis of the vagina, to dislodge the fundus from below the sacral promontory, the cervix is then pushed upward and backward into the hollow of the sacrum; this tilts the fundus forward, where it is held by intra-abdominal pressure when the patient assumes the upright position. Before the cervix is released a wool tampon saturated with boroglycerine is placed in front of and below the cervix to maintain it in its posterior position. This tampon may be left in place for forty-eight hours, when it is withdrawn, while the patient is in the knee-elbow posture, the vagina swabbed out with an antiseptic solution and another tampon put in place. This treatment may be repeated every second or third day until all inflammatory changes in the vagina and cervix have subsided, when a properly fitting pessary will keep the uterus in place until the natural supports have regained their tonicity. By such attention one may cure movable post-abortal retrodisplacements and save his patient much suffering and subsequent surgery.

More or less endocervicitis invariably follows abortion. This is associated with some degree of eversion and erosion of the cervical mucous membrane, producing a muco-purulent leucorrhea. A few applications of Churchill's tincture of iodine, followed by a boroglyceride tampon, readily clear up this little complication. Finally, general tonic treatment, fresh air and the proper attention to the gastro-intestinal tract, tend to bring the case to a happy termination.

CASE OF FOREIGN BODY (SAFETY PIN) IN THE ESOPHAGUS.*

BY CHARLES N. COX, M.D.,

BROOKLYN-NEW YORK.

ELEANOR H., aged 10 months, was brought into my office May 23d, 1905, with the following history: Three days previously, while dressing the child, the mother missed one of the small safety pins used to fasten a bib onto her dress. While search for the missing article was being made, the little one acted as if it had something in its mouth. Upon examination of the child's mouth by the mother, she thought she caught a glimpse of the pin, far back, and made an attempt to extract it with her finger, but failed. The only symptoms present, at any time, were *restlessness*, occasional *gagging* and *vomiting*, and some *cough*. Respiration was normal and without difficulty. Nothwithstanding the lack of urgent or threatening symptoms, the parents were anxious, since the mother felt positive she had seen the pin in the child's mouth, and the closest search failed to bring it to light about the person of the mother or child. Accordingly they sought professional advice. The baby was taken to the family physician, who assured them there was nothing to be seen in the throat; that if the pin had been swallowed, it would probably pass through the alimentary canal without doing harm. Still dissatisfied, they consulted another practitioner, with the same result—a most positive opinion that there was no foreign body present. The next visit was to the office of the writer. Upon examination, without the aid of a mirror—by merely depressing the tongue—a part of the missing pin was brought into view, viz., the clasp, just within the esophageal opening. To establish more thoroughly its exact position, the laryngeal mirror was used, and showed the pin in the esophagus.

It had gone down with the apex or spring end first, and it was probably open; which, while enhancing the difficulty of removing it, at the same time made it more easy to push it further down by any misdirected efforts. The visible part was carefully but firmly grasped with a pair of curved forceps. Slight upward traction showed that the pin was open, as suspected, and that the point was buried in the walls of the esophagus—the clasp on the left side, the point on the right side. The clasp was then sprung over toward the point, and the then almost closed pin was rotated—made to turn a somersault, as it were. This freed the pin and it was then perfectly easy to effect a removal. The main point of interest in this case lies in the fact that so dangerous a foreign body as an open safety pin lay in the esophagus, and yet remained undiscovered by two practitioners, although a portion of it was exposed to direct view in the lower pharynx by so simple a procedure as depressing the tongue, without the aid of mirrors or other apparatus.

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*Read before the Laryn., Rhin. and Otological Section of the Kings County Medical Sociey January 17, 1907.

REVIEW OF GERMAN PEDIATRIC LITERATURE OF 1906.*

By ARCHIBALD D. SMITH, M.D.,

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IN selecting the following subjects, the endeavor has been made to select those which have received scant attention in American pediatric literature. The first subject to which I would call your attention is: INFANT FEEDING WITH BUTTERMILK.

Feeding with "Dutch Infant Food," a Buttermilk Mixture. By Dr. Koeppe. (Jahrbuch f. Kinderheilkunde, April, May, June, 1906.) Buttermilk feeding has been placed in favor and trustworthiness immediately after breast feeding. The bad quality of the buttermilk used has been the cause of many bad results. Another mistake is that the so-called buttermilk feeding is no uniform conception, but under this name the most different methods prevail.

Different authors speak of buttermilk obtained:

1. From self-soured cream.
2. From cream soured by pure cultures of bacteria.
3. From spontaneously soured whole milk.
4. From skimmed milk soured with pure cultures of bacteria.
5. From sweet skimmed milk.
6. From whole milk soured with pure culture of streptococci.

Dutch Infant Food. Ballot's and Heubner-Salge's recipes form the basis of Dutch Infant Food in so far as the buttermilk is obtained only from sour cream and under fresh conditions. 15 gms. sugar and 60 gms. white flour are added to each liter of buttermilk.

Properties of the Liquid Form. It has a specific, aromatic sour smell and a sour sweet taste, the sweet prevailing. On standing it separates into two layers with a sediment; the sediment contains flour and casein.

Eighty-seven cases fed on Dutch Infant Food are tabulated and the histories given in detail; the ages varied between 1 day and 12½ months; at the end of the first week 57 cases had gained from 20 gms. to 700 gms.

Only in exceptional cases have infants refused the food, and I am not sure it was not the fault of the mothers; vomiting at the beginning of feeding with Dutch Infant Food has been observed several times, but only when cow's milk had been given just previously; the number of stools is variable; a few children have only one stool daily, the most three or four, and exceptionally they have five; the typical stool is golden yellow, pasty and alkaline; acid reaction has often occurred at the beginning before the typical stools occurred; constipation with the exclusive use of Dutch Infant Food has seldom occurred.

Mixed Breast Feeding. Dutch Infant Food is preëminently fitted for mixed breast feeding; infants appear to make no distinction between the two very different foods. Whole milk and Dutch Infant Food have been used together with good results. In weaning, Dutch Infant Food has done good service, whether sudden or gradual. As nourishment for well children, it is well borne with the addition of cream and butter. At first I must confess I was afraid of the development of rickets, but when the food was taken for months with excellent physical condition, no limit was placed to the feeding. After giving the food in acute enteric catarrh in the beginning, I have given it up, and now wait a few days till the acute stage is passed. In dyspepsia I begin the exclusive use of the food on the second or third day. In chronic enteritis the results with the food were striking. In cases diagnosed as atrophy the food appeared life saving.

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*Read before the Section on Pediatrics of the Medical Society of the County of Kings, Dec. 26, 1906.

Does Buttermilk Cause Rickets? By Dr. Max Cantrowitz. (Jahrbuch f. Kinderheilkunde, June, 1906.) In 1898 de Jager ascribed to buttermilk a prophylactic rôle against rickets and Barlow's disease, both of which he looked upon as a chemical acid intoxication.

In opposition to de Jager, Teixeira says: "Moderate rickets was the rule in children on this diet for 6-8 months."

Kobrak likewise says: "Buttermilk too long administered can cause constitutional disturbances, anemia, swelling of the spleen and liver."

Baginsky says he has never observed rickets or scurvy from long continued feeding with buttermilk.

Rommel in Czerny's clinic after metabolism experiments, especially the calcium balance, says, "through quicker and increased lime excretion in the intestines, buttermilk cannot be denied an etiological relation to rickets."

Massenek says: "Buttermilk as such does not cause rickets."

Of all our cases which received buttermilk, there were forty-five to fifty which received it two months or longer, and of these, thirty-nine were examined one and two years later; of these, twelve showed rickets, five a trace, five moderately severe, and two severe; other factors may have entered into the causation of rickets. As an example, one case was the familiar hereditary rickets, and so buttermilk cannot be made responsible.

Conclusions.—Buttermilk gives no evidence of an effect causing rickets or favoring it, provided it is properly used with a gradual cream or milk addition; that naturally with buttermilk feeding, as with other methods of feeding, rickets can develop, is comprehensible; but the material is too small to give a decided judgment on this point. We are not justified in discrediting an infant food on the strength of laboratory investigations, especially when this food has taken the people by storm.

Is the Addition of Flour to Buttermilk Necessary? By Dr. Max Cantrowitz (Jahrbuch f. Kinderheilkunde, June, 1906. In all articles about buttermilk as an infant food, from de Jager, in 1895, who took up Ballot's work of 1865, to the latest publications, the advice is always given to add sugar and flour to fresh buttermilk. But we soon found some cases did not bear flour; the microscopic investigations of the stools prepared with Lugol's solution gave violet to dark-blue starch. If we now added diastasized flour, starch often disappeared; sometimes, however, even this was not well borne; there was no alternative therefore, but to leave out the flour, whereupon the stools remained starch free; from the omission of flour we have never seen harm; our experience in regard to the addition of flour to buttermilk can be summed up as follows:

1. The addition of flour to buttermilk is not necessarily demanded. It can even give rise to disturbances.
2. Flour-free buttermilk is not more difficult to digest than buttermilk containing flour.
3. To avoid the lumpy coagulation of buttermilk it should be heated, especially in the beginning, over a slow fire with constant stirring.
4. According to the kind of intestinal disturbances, flour or fat can be added to the buttermilk.

Indications for Buttermilk Feeding. By Dr. Carl Brehmer (Jahrbuch f. Kinderheilkunde, June, 1906.) In Neumann's clinic, Kobrak established the following conclusions as to the indications for buttermilk:

1. In premature children and in those poorly developed at birth, to whom breast feeding cannot be given, buttermilk gave the best results.
2. In atrophic children.
3. In alternation with breast feeding.

4. In the dyspeptic cases of moderately severe and light intestinal catarrh, but not in the acute stage.

5. In congenital or early acquired vomiting of severe type.

According to our views buttermilk is indicated as follows:

1. In great irritability toward proteid, and especially if this is so great that the common methods of making proteid more digestible do not work.

2. In irritability toward fat.

3. In irritability toward cereals.

Buttermilk is a fitting food for these cases because it contains only 0.5 per cent. fat and 2.3 per cent. carbohydrates, if flour and sugar are left out.

The disturbances most frequently observed with buttermilk feeding were the proteid disturbances; at first the stools were mortar-like and crumbling. Then gradually or suddenly they became pasty, mucous, fetid and strongly alkaline. Then more fluid and more numerous; the disturbances from fat and carbohydrate are in most cases the result of the addition of these substances.

Blood Pressure Measurements in Well and Sick Infants. By Dr. Trumpp. (Jahrbuch f. Kinderheilkunde, January, 1906). Up to this time accounts of blood pressure in infants have been rare; the results obtained were drawn from 1,300 observations; the instrument used was Gärtner's tonometer with a slight modification of the rubber finger ring for producing the anemia of the finger.

A single blood pressure measurement never has much significance, but the blood pressure curve can be made use of clinically if we limit ourselves to deriving conclusions from its average height or its tendency to rise and fall.

The blood pressure is derived from: 1, the energy of the heart; 2, the resistance in the vessels; 3, the quantity, possibly also the quality, of the blood.

In healthy, resting infants the blood pressure does not go above 90 mm. of Hg., and does not sink below 60 mm. of Hg.; the commonest is 80 mm. of Hg.; 60 to 70 mm. Hg. is common only in sleeping children or in premature and weak infants.

In infants nourished at the breast the blood pressure curve shows a quiet, uniform, nearly horizontal course between 75 mm. and 90 mm. of Hg.

In icterus the blood pressure is raised in the beginning, and lowered after its full development.

In bronchitis and broncho-pneumonia the blood pressure is raised in proportion to the severity of the disease, and the power of the heart. In improvement and lessening of resistance in the pulmonary circulation the blood pressure sinks, to mount again when the process flares up.

In nervous disturbances and convulsions there is a rise of blood pressure. Also in inflammatory and suppurative processes, and in angina, otitis, lymphadenitis suppurativa and phlegmon; the height of the blood pressure depends on the severity and extent of the inflammatory process. Incision causes a momentary fall; a permanent fall first occurs with the unhindered flow of pus.

The most interesting results of the investigation were in two cases with quite large V-shaped fluctuations in the weight curve; the blood pressure curve followed the weight curve not only in the descent, but also in the ascent.

Two Cases of Congenital Atresia of the Tricuspid Orifice. By Dr. Marie Kühne. (Jahrbuch f. Kinderheilkunde, March, 1906.) Although the first description of this rare heart anomaly was given by D. G. Schipmann in 1869, there are now only six known cases in all, besides the two reported.

Case I.—Infant, 7 months, with general cyanosis, distinct in finger nails and lips, made worse by crying. Attacks every eight days since 3 months of age. Breathing, sighing. On auscultation there is a loud blowing, systolic murmur over the base, soft over the sternum and at the apex, not heard in the back; 2d pulmonary not accentuated; liver and spleen not large; anterior fontanelle open. A step-brother of patient, from first marriage of father, also had a heart murmur. Father and mother healthy.

At 10 months the murmur was loudest over the sternum, then over the pulmonary area, and was transmitted to the left. At apex nothing heard. Right border of heart, one-half finger to right of sternum. Pulse, 112. Liver, lower border below level of navel. Spleen, two fingers below free border ribs. Severe attacks of cyanosis.

Death at 14 months after vomiting a brownish-red material twice. Rales posteriorly.

Description of heart. Left ventricle apparently normal from in front; right ventricle very small, separated by deep furrow from right auricle, which is markedly dilated. Pulmonary artery, size of a quill, comes from right ventricle. Sacculate expansion of aorta 1.8 cm. above its origin, more marked on right. Chamber of left ventricle 9 cm., right ventricle, 2.6 cm. Right ventricle only appendage of left; muscle of right auricle thicker than that of left auricle; foramen ovale large, admitting index finger; left ventricle large; valves of mitral, pulmonary and aortic openings normal. *Na tricuspid opening and no trace of tricuspid valve; thick muscle plate between right auricle and right ventricle;* slit-like opening in interventricular septum; ductus arteriosus, 2 cm. long, from point of division of pulmonary to below beginning left subclavian; a little pressure forces a probe through it.

Case II.—At birth infant showed blue color of face and hands, made worse by crying. Weaned at three months. Digestive disturbances and no gain in weight on cow's milk; one to three attacks of dyspnœa and cyanosis daily. Lips and hands extremely blue on crying. Heart disease or other malformations unknown among all the relatives.

At 9 months loud, blowing, systolic murmur heard in back. Breathing labored and sighing, and expiration often accompanied by loud cry. Pulse, 132. Towards the end the murmur became weaker, and not heard in back, and death occurred during an attack.

Description of heart. (Hardened in formalin.) Anterior surface formed by exceptionally large left ventricle; right ventricle ribbon-like appendage; right auricle hypertrophied and dilated to double normal size; left auricle is normal; large right auricle continues directly into left, forming one space with it, a ridge separating the two; no valve to foramen ovale; on floor of right auricle there is a short furrow ending at a point for a tricuspid opening; *no trace of tricuspid valve; no communication between right auricle and ventricle, but thick muscle plate separates them.* Pea-sized opening through thickened interventricular septum, connecting left and right ventricles; wall of right ventricle very thin; pulmonary artery narrowed with two normal semilunar flaps; left ventricle markedly dilated. Expansion on convex surface of ascending aorta. Ductus arteriosus impervious to sound, but shows a lumen in a series of microscopic sections. No endocarditic process.

Comparing both cases we find the following agreement: Closure of right auriculo-ventricular opening; great development of right auricle; open foramen ovale with disappearance or lack of development of auricular septum; rudimentary right ventricle; communication between right and left ventricle by means of opening in interventricular septum.

Points in diagnosis. In all reported cases except that of Chapotot there is from birth striking cyanosis, especially of the lips, end of nose, and fingers, which are often club-shaped. Later, cyanosis of whole body; jugular veins very full; mucous membranes of mouth and throat markedly cyanotic; nourishment difficult; edema towards the end; sometimes albuminuria and hemoptysis; respiration difficult, shallow, sighing, sometimes irregular; bronchial catarrh or dry cough; temperature lowered; apex beat of heart misplaced, in sixth interspace in mamillary line; systolic thrill on palpation over whole precordium; pulse irregular and small; enlargement of heart. Auscultation is the most important for diagnosis; there is a systolic murmur over the whole cardiac area, continuing into diastole, loudest at the lower part of the sternum, and transmitted towards the heart apex and pulmonary area; in special cases the murmur is heard in the back; its origin is either in the narrow communication between the right and left ventricle, or in the great mass of blood which is so forcibly thrown into the aorta.

Diagnosis Between Insufficiency of the Tricuspid and Pulmonary Stenosis.—Insufficiency of the tricuspid is characterized by venous pulse. It is seldom without complications and does not belong to the frequent congenital heart lesions. In a child born with cyanosis and dyspnœa the first thought is pulmonary stenosis. In pulmonary stenosis the greatest intensity of the murmur is at the base of the heart in the second left intercostal space.

Diagnosis between Atresia of the Tricuspid and Pulmonary Stenosis.—With marked cyanosis, choking attacks and edema from birth, the diagnosis is atresia of the tricuspid, if there is heard over the sternum a loud, systolic murmur, transmitted to the base and apex of the heart, and if the heart is enlarged to the left. Enlargement to the right does not characterize this heart murmur. If the systolic murmur is most distinct in the second left intercostal space, and there is enlargement of the heart to the right, the diagnosis is pulmonary stenosis.

Prognosis.—The longest duration of life was twenty-seven years, the shortest, four hours. Death occurs in an attack of dyspnœa or from an intercurrent disease.

OCULAR HEMORRHAGE.*

JAMES COLE HANCOCK, M.D.,

BROOKLYN-NEW YORK.

LIKE many another form of disordered condition in the human economy, subconjunctival hemorrhage presents objective symptoms far more alarming in appearance than the state really merits.

As the designation implies, this is a hemorrhage beneath the conjunctiva, the blood-vessels in this locality being easily ruptured. Although a rupture of subconjunctival vessels may occur spontaneously, it is usually the result of a strain such as accompanies retching, vomiting, violent coughing and other muscular effort, and in girls occurs as a vicarious menstruation. Injuries to the cornea, sclera and the ciliary region are usually accompanied by subconjunctival hemorrhage, as are also operations upon the eye, especially upon the muscles; and if adrenalin has been used during the operation, the hemorrhage, coming on after the influence of the drug has worn away, is often marked.

Recurrent subconjunctival hemorrhages occurring spontaneously are of diagnostic value, for they may be indicative of nephritis, diabetes or arteriosclerosis, but very little importance should be attached to other varieties for, notwithstanding the rather alarming appearance, they need cause no concern.

As these hemorrhages resolve by slow absorption, they are apt to respond but imperfectly to treatment. Hot bathing, with a solution of boric acid combined with occasional instillations of adrenalin solution in limited strength, are remedies at present employed to hasten the process of absorption.

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*Read before the Long Island Medical Society April 2d, 1907.

The next type of ocular hemorrhage to be considered is that into the anterior chamber of the eye; into the aqueous humor.

While this variety is of much more importance than is the subconjunctival, because of its interference with vision, if in large amount, it usually responds more readily to treatment. It is not, generally speaking, followed by serious results, a most, if not quite, complete absorption taking place as a rule.

Injuries to the anterior portion of the sclera, the iris, and the ciliary region, operations upon these structures or in their neighborhood, and inflammations of the iris and ciliary body are among the most frequently encountered causes.

These hemorrhages, owing to the nature and extent of the conditions responsible for them, naturally vary much in amount, and when inconsiderable the blood sinks to the lower part of the anterior chamber, below the pupil, and does not obstruct vision. Again, the anterior chamber may be quite filled with blood and the patient is temporarily, at least, deprived of sight so far as objects are concerned.

Atrophy of the iris predisposes to hemorrhage from that membrane.

Treatment should embrace some form of constitutional absorbent, iodide of potash being considered the most valuable. Hot bathing should be resorted to as a local measure, and inflammations, injuries and other ascertainable causes treated promptly.

Hemorrhage into the vitreous is a much more serious condition than is subconjunctival hemorrhage or hemorrhage into the anterior chamber. The blood may come from the vessels of the choroid, ciliary body, or retina, and the hemorrhage may occur in connection with anemia, diabetes, nephritis, glaucoma and arteriosclerosis. Hemorrhages may even occur, apparently, spontaneously.

In the general diseases mentioned the hemorrhages are probably due to disease of the walls of the vessels in the eye tunics.

Hemorrhages in myopia, which do occur, are produced in the same manner; degeneration of the vessel walls.

While in glaucoma hemorrhage may occur because of the engorgement of the vessels during an inflammatory attack, the relief of the supporting pressure brought about by the operation of iridectomy performed to limit such an attack, may be immediately followed by severe hemorrhage. Naturally this is most apt to be induced if the blood-vessels are already in an abnormal state.

The extraction of cataract in the eye with increased tension may be attended with hemorrhage or followed by it, and this hemorrhage is often excessive enough to destroy all chance of useful vision.

The importance and gravity of hemorrhage into the vitreous can hardly be overestimated, for it always causes some disturbance of vision, and, it may be, complete blindness. Absorption almost always takes place very slowly and, more often than not, incompletely, so that when there is not decided loss of sight, there are apt to be left behind one or more opacities which are movable in the vitreous, and which often cause much visual disturbance. The rate of movement of these opacities is governed by the state of fluidity of the vitreous. Again a blood clot of moderate size which has seemed to be in a stationary condition, and which has not seriously interfered with vision, may suddenly enter into solution in the vitreous and, by giving its pigment diffusely to that body, cause decided diminution of vision.

Generally speaking, the treatment of hemorrhage into the vitreous should be directed to the constitutional cause for it, if any exist, depletion, regulation of the bowels and the impressive use of iodide of potash to assist absorption.

43 Cambridge Place.

LONG ISLAND MEDICAL JOURNAL

A Forum for the Discussion of all Topics involving the Medical Profession and especially that of Long Island.

EDITED BY
PAUL MONROE PILCHER, A.M., M.D.

EDITORIAL OFFICE:
386 GRAND AVENUE, BROOKLYN, N.Y.

Further information on advertising page 34

NEUROGRAPHS — A NEW MEDICAL JOURNAL.

BROOKLYN is fast taking its place as a medical literary center. The Library of the Medical Society of the County of Kings has grown so rapidly that at the present time it stands first among medical libraries owned by County Societies. Many men have been active in its development, but I believe that few will contest the statement that there is no one to whom more credit is due for its present condition than to Dr. William Browning, of Brooklyn; the work of the development of this institution is constantly in his mind.

Now he appears in a new rôle, as editor of "Neurographs," a dignified and scientific journal devoted exclusively to the dissemination of neurological studies, which will be published as often as is warranted by the material in hand. The editor states in his announcement that the reason for starting this publication is a need for some convenient place to put on record work done by men more or less associated with him, and thus to utilize opportunities, material and effort, much of which would otherwise be lost. Advertisements will be dispensed with.

The first number contains articles by J. E. Sheppard, F. C. Eastman, F. Tilney, E. G. Zabriskie, R. O. Brockway and William Browning. The journal is in every way a credit to its author.

THE JUNE MEETING OF THE ASSOCIATED PHYSICIANS OF LONG ISLAND.

THE next meeting of the Associated Physicians of Long Island will be held at Patchogue, Long Island, June 22, 1907. This is the "outing" meeting of the Association, and a large attendance is expected. The scientific portion of the program will consist of papers by Drs. George McNaughton and Robert Dickinson, of Brooklyn, who will present their views concerning "Office Work in Gynecology." After the meeting there will be a dinner, which will be informal. The program, containing the time-table and special details of the meeting, will be mailed to the members a week before the date of the meeting.

CLINICAL SOCIETY OF THE JEWISH HOSPITAL.

FRIDAY evening, May 10th, the organization meeting of the Clinical Society of the Jewish Hospital was held at the Hospital Building, Classon and St. Marks Avenues and Prospect Place. The Society is composed of all the physicians connected with the Hospital and Dispensary. The following program was presented at this meeting:

Dr. Joseph Merzbach: A Case of Sarcomatosis with Pathological Report by Dr. S. R. Blatteis.

Dr. William Lintz: A Case of Dextro-Cardia.

Dr. J. B. Bogart: A Case of Carcinoma of the Pelvic Peritoneum.

Dr. H. Beeckman Delatour: A Case of Carcinoma of the Splenic Flexure.

Dr. William Linder: A Case of Extensive Tuberculosis of the Vertebrae and Ribs.

Dr. John O. Polak: A Case of Empyema of the Gall Bladder.

The above cases were presented, their histories read, and the conditions freely discussed by the members of the Society present.

Those who are interested in the development of the scientific side of hospital work will readily appreciate the importance of the organization of this, the first, Clinical Hospital Society in Brooklyn. The Society has been organized not only for the benefit of the attending physicians and surgeons of the hospital and for the internes and members of the Dispensary Staff, but also that the medical friends of the members may see the interesting cases which are treated at the hospital and may in a measure receive benefit, even though they be not directly connected with the hospital itself. This Society adds one more prop to the rapidly growing strength of the medical profession in Brooklyn. The Clinical Society of the Johns Hopkins Hospital is considered one of its important departments in the work of that institution; and it is expected that this Brooklyn Society will rapidly grow in importance, and will serve to stimulate exactness of diagnosis and careful study of all the cases in the hospital.

THE LATE PROFESSOR ERNST VON BERGMANN.

VON BERGMANN was born in Riga, the capital of the Russian Baltic Provinces, on December 16, 1836. He served as surgeon in the Prussian Army during the campaign of 1866, and again in the Franco-Prussian war of 1870; he also served as surgeon in the Russo-Turkish war. In 1871 he was appointed Professor of Surgery in the Dorpat University, and later was called to the Würzburg University where he remained for four years; in 1882, he was appointed Professor of Surgery in the Berlin University. Two years ago von Bergmann developed serious intestinal symptoms, which forced him gradually to give up his work at the University Clinic. Although seventy years of age, his work began at eight o'clock in the morning and continued almost unceasingly throughout the day—operating and instructing until night. His greatest sorrow was in having to resign his work at the University on account of his ill health. On March 22d, symptoms of intestinal obstruction appeared and he was operated upon by Professor Schlange, of Hanover, one of his former pupils; a second operation was necessary, but the advent of purulent peritonitis made all medical efforts futile. He died on Monday, March 25th, at eleven o'clock in the morning. Through his death Germany has lost one of her most masterful and skillful surgeons; and the University of Berlin, one of its strongest personalities. To the medical profession he has left "A System of the Practice of Surgery," which at the present day is considered one of the greatest surgical works of Germany.

MEDICAL NEWS.

June Meeting of the Associated Physicians of Long Island—The next meeting of the Associated Physicians of Long Island will be held at Patchogue, Long Island, June 22, 1907.

Suffolk County Medical Society—On Thursday, April 25, 1907, the semi-annual meeting of the Suffolk County Medical Society was held at Patchogue, Long Island. The following scientific programme was presented:

A Case of Ectopic Pregnancy, with specimen. Dr. A. C. Loper, Greenport.

A Case of Eye Enucleation for Calcareous Lense. Dr. S. B. Allen, Riverhead.

The Long-Waisted Woman and Her Floating Kidneys. Dr. A. Ernest Gallant.

Experiences with Rabies. Drs. W. A. Hulse, Terry and Overton.

A Case for Diagnosis. Dr. William Hugh Ross.

Stereopticon Talk on the Philippines—On Wednesday evening, April 24, Dr. Jerome Thomas gave a stereopticon talk on the Philippines in the auditorium of the Library Building of the Medical Society of the County of Kings. Dr. Thomas was lately Surgeon-in-Chief of the Civil Government Sanitarium at Baguio, province of Benguet, Philippine Islands. The lecture was largely attended by members of the Society and their families, and was followed by a reception at the home of Dr. Glentworth R. Butler, the President of the County Society.

Dr. George R. Hawley, who has removed to No. 203 Gates avenue, has had his offices fitted up with all modern conveniences for the special treatment of diseases of the eye.

A Private Nursing Home—Miss Chappelle has opened a private nursing home for surgical, obstetrical and medical cases at 635 Delamere Place, Avenue F, Flatbush. Telephone 1240 Flatbush. Miss Chappelle is prepared to supply nurses, dressing materials, and operating room for surgical cases, the operator providing his own instruments.

Brooklyn Society for Neurology—On Friday, March 28, this Society held its regular monthly meeting, at which were discussed The Relations of the Rhino-Pharyngeal Affections to Neurology. A full report of this meeting, with the papers read, will be published in a later number of the Journal.

The Washington Medical Congress, held in May, was attended by a number of Brooklyn physicians; among them were Drs. Alderton, Bristow, L. S. Pilcher, Dickinson, Ingalls, C. Jewett, Napier, H. R. Price, J. E. Sheppard, R. W. Westbrook, Winfield and J. S. Wood. It is important for the good of the local profession that more men attend the meetings of the various special and national organizations; it seems that more men should take enough interest in the meetings of the larger organizations than would appear from the list of names above given.

One Hundredth Anniversary of the College of Physicians and Surgeons—The Alumni of the College of Physicians and Surgeons of New York have been invited to participate in the celebration of the one hundredth anniversary of the founding of the College, to be held at the College buildings, 437 West 59th street, Borough of Manhattan, on Monday and Tuesday, June 10 and 11. The programme includes demonstrations of methods and clinical cases, medical and surgical clinics, social and university meetings.

Dr. Crile's Visit—Monday evening, May 21, Dr. George W. Crile, of

Cleveland, Ohio, read a paper before the Kings County Medical Society on "The Direct Transfusion of Blood." The following day he attended some of the clinics at the Brooklyn hospitals, and in the afternoon performed a direct blood-transfusion at the Seney Hospital. The patient was suffering from a rupture of the spleen, rupture of the renal vein and rupture of the liver; the transfusion stimulated the patient enough to enable the surgeon to make an exploratory laparotomy and remove the lacerated spleen, but the other injuries were so extensive that reparation was impossible, and the patient died two hours later. The demonstration showed very clearly the value of transfused blood, and also the comparative safety of the procedure.

Dinner to Dr. Delatour—The Society of Ex-Internes of the Methodist Episcopal Hospital gave a thanksgiving dinner in honor of Dr. H. Beeckman Delatour, to celebrate his recovery from a recent severe attack of typhoid fever. The dinner was held at the Montauk Club, Friday evening, May 3, 1907.

Anniversary of the Medical Library Association of Brooklyn—Tuesday evening, May 14, 1907, the Medical Library Association held its Annual Meeting. The session was well attended, and was addressed by Dr. Packard, of Philadelphia, who spoke of the development of medical libraries in Philadelphia; and by the Rev. Dr. William Brundage, of Brooklyn, who presented the views of a layman upon the life and achievements of Pasteur, being "A Study and Appreciation of His Career."

Brooklyn Gynecological Society held its regular meeting Friday evening, June 7, at the Kings County Society building. The paper of the evening was read by Dr. W. B. Chase, and dealt with the subject of cystocele, rectocele and procidentia.

Dr. Hall-Brown in Japan—Recently, Dr. Lucy Hall-Brown removed from Brooklyn to Los Angeles, California; from thence she made an extended tour through Japan, and has again returned to that country to give a course of lectures, on Hygiene, to the Japanese girls. In a letter to a Brooklyn friend, quoted in the Brooklyn Eagle, she writes as follows:

"To-morrow I go to Yokohama, to talk to a girls' club, foreign this time. I shall feel queerly to find myself talking to any girls not Japanese. I am to go to Kobe soon, and to Kyoto, and one other place not far away, and I am meeting a great many people, both native and foreign. A few days ago a gentleman, his uniform all a-glitter with orders, drove up and sent in his card. Baron Dr. Ishigaro; I met him just twenty years ago at a Red Cross conference, at Carlsruhe. He is now a very great man, and was lately decorated anew by the Emperor. He is a member of parliament. He begged to be allowed to do anything possible for me while I remain in Japan. A number of titled people have called, and I have visited them. It has been of interest to see this side of Japanese high life, and I have enjoyed it very much, but after all the real pleasure has been in getting a hold of these bright-eyed, hungry-brained, vivid and determined young Japanese women, and, more than all these, they are the ones who will give this sturdy and brilliant nation the final touches needed to bring them up to a full realization of the ideals for which they are reaching and struggling. High and low, I love these people more every day. They are kind, cheerful, glad to serve you for the smallest favor with a sturdy, honest pride."

The Annual Meeting of the Queens-Nassau Medical Society was held in the Nassau County Court House, Mineola, N. Y., on Tuesday, May 28, 1907, at 2:45 p. m. Seven new members were elected, and the Secretary reported 86 active members. The Treasurer reported a balance of $442.40 in the treasury, June 1st.

Scientific Session.

Dr. Bertram H. Waters, of New York City Department of Health. Paper: The Municipal Control of Communicable Diseases.

Dr. Joseph H. Bogart, Health Officer, Town of North Hempstead, N. Y. Paper: Control of Communicable Diseases in Rural Communities.

Dr. W. Travis Gibb, of New York City. Paper: Treatment of the Adnexa.

Officers.

The following officers were elected for the term commencing January 1, 1908:

JOHN H. BARRY, of Long Island City, President.

C. M. NIESLEY, of Manhasset, Vice-President.

JAMES S. COOLEY, of Glen Cove, Secretary-Treasurer.

Censors.

WM. J. MALCOLM, Jericho.
H. M. AUGER, Jamaica.
H. M. WARNER, Hempstead.
P. H. BUMSTER, Long Island City.
J. F. BLOODGOOD, Flushing.

Historian.

WALTER LINDSAY, Huntington.

Delegates, State Society, One Year.

C. M. NIESLEY, Manhasset.
H. MACDONALD, Morris Park.
R. F. MACFARLANE, Long Island City.

Delegates, State Society, Two Years.

JOSEPH H. BOGART, Roslyn.
SAMUEL HENDRICKSON, Jamaica.

Second District Branch.

G. A. FENSTERER, Floral Park.

The Pediatric Section of the Medical Society of the County of Kings announces that Dr. John L. Morse will read a paper on "Infantile Scorbutis" at the June meeting, which will be held on June 18, in connection with the regular meeting of the Kings County Medical Society. Preceding the meeting a dinner will be given at the Union League Club promptly at 7 o'clock, at which it is hoped that every member of the Section will be present to meet Dr. Morse.

Long Island College Hospital Graduates—The following members of the Graduating Class have received appointments on the staffs of the hospitals named:

L. M. Alofsin, German Hospital, Newark, N. J.; A. F. R. Andresen, Brooklyn Hospital, Brooklyn; H. L. Barnes, Williamsburgh Hospital, Brooklyn; P. E. Betowski, St. John's Hospital, L. I. City; A. L. Carroll, Sea Side Home and Long Island College Hospital, Brooklyn; H. W. Dangler, Williamsburgh Hospital, Brooklyn; T. G. Davis, J. Hood Wright Hospital, Manhattan; T. G. De La Hoyde, St. Catherine's Hospital, Brooklyn; G. C. Elder, Sea Side Home and Long Island College Hospital, Brooklyn; M. P. Ferstler, St. Catherine's Hospital, Brooklyn; D. S. Fettes, Swedish Hospital, Brooklyn; H. L. Finley, St. Vincent's Hospital, Staten Island; B. G. Gerzog, Bayonne Hospital, Bayonne, N. J.; F. L. Guarino, Long Island College Hospital, Brooklyn, N. Y.; J. Halperin, Bushwick Hospital, Brooklyn, N. Y.; G. E. Henderson, Long Island College Hospital; T. V. Higgins, St. Mary's Hospital, Brooklyn, N. Y.; R. R. Johnson, Freedman's Hospital, Washington, D. C.; H. J. Kohlmann, St. Vincent's Hospital, Staten Island; J. G. Larsson, Swedish Hospital, Brooklyn; J. R. Losee, St. John's Hospital, Brooklyn; F. L. McCrea, Long Island College Hospital, Brooklyn; F. J. McMenamin, Long Island College Hospital; S. Markel, Lying In Hospital, Manhattan; A. G. Maron, St. Mary's Hospital, Jamaica, L. I.; E. L. Minard, German Hospital, Newark, N. J.; H. J. Morgenthaler, Brooklyn Hospital, Brooklyn; H. A. Morris, Swedish Hospital, Brooklyn; T. F. Nevins, St. Mary's Hospital, Brooklyn; M. L. Pinco, Bushwick Hospital, Brooklyn; R. M. Rogers, Long Island Island College Hospital; J. Safian, Eastern District Hospital, Brooklyn; G. F. Sammis, St. John's Hospital, Brooklyn; W. D. Scanlan, Kings County Hospital, Brooklyn; F. E. Solier, Long Island College Hospital; I. A. Stoloff, Beth Israel, Manhattan; H. Trossbach, Jr., Englewood Hospital, Englewood, N. J.; R. G. Tunison, Jersey City Hospital, Jersey City, N. J.; H. L. Van Winkle, Englewood Hospital, Englewood, N. J.; W. Weltman, Long Island College Hospital, Brooklyn; G. S. Wolff, Long Island College Hospital, Brooklyn; A. J. Zuckerman, Long Island College Hospital, Brooklyn.

Medical Library Association of Brooklyn—The following letter was sent out by the Membership Committee of the Association:

Brooklyn, May 25th, 1907.

DEAR DOCTOR:

The annual Report of the Medical Library Association of Brooklyn was mailed to you a few days ago. It tells the story of the origin of the Association as well as its gradual development to its present promising condition. The sole object of the Association is to aid in the maintenance and growth of the magnificent library of the Kings County Medical Society, which in size ranks fourth among the great medical libraries of the country, and is by far the largest of any county medical society in the United States.

The income of the Kings County Medical Society is not sufficient to permit of any considerable amount of money being expended upon the library, and therefore, as the report states, the Medical Library Association was formed "to bridge the gap between our desires and their attainment by supplying the library with a steady supplementary income, to be used for the purpose of caring for our present collection and augmenting it."

The membership roll at present numbers 72, and we greatly desire to increase the number to at least 100 during the present year. We need the coöperation of every scientific man in this enterprise, and if you are not actually a member, will you not give the matter your careful consideration?

If the work of the association appeals to you, and you decide to become a member, please fill out the attached form and mail to either

T. R. FRENCH, M.D., 150 Joralemon St.
J. W. FLEMMING, M.D., 471 Bedford Ave.
C. H. GOODRICH, M.D., 280 Park Pl.
J. B. BOGART, M.D., 463 Clinton Ave.
JOSEPH MERZBACH, M.D., 198 Eighth Ave.
Membership Committee.

Or to A. M. JUDD, M.D., *Secretary*, 188 Sixth Ave.

Annual dues, $10.

REMOVAL NOTICES.

Dr. Jerome B. Thomas announces that he has removed to 171 Joralemon street, between Clinton and Court streets. Office hours, 8 to 10 A. M.; afternoon and evening consultation by appointment. Telephone, 46 Main.

Dr. Stephen H. Lutz has removed to 284 Hancock street, between Marcy and Tompkins avenues. Office hours, 8 to 12 A. M. daily. Monday, Wednesday and Friday, 5.30 to 7 P. M. Telephone, 574 Bedford.

Dr. George Chaffee announces the opening of his office and private hospital at 338 Forty-seventh street, Bay Ridge. Office hours until 10 A. M., 5 to 7 P. M. Telephone 15-J Bay Ridge.

Dr. Charles J. Search has removed to 453 Franklin avenue, corner of Putnam avenue.

Dr. Charles L. Stone has removed his office to 288 Halsey street, between Tompkins and Throop avenues. Telephone, 3229 Bedford.

Dr. George R. Hawley, who has resided for the past eleven years at 309 Gates avenue, has removed to 203 Gates avenue, near Classon avenue.

THE JUNE MEETING OF THE

ASSOCIATED PHYSICIANS
OF
LONG ISLAND

WILL BE HELD AT PATCHOGUE, JUNE 22, 1907

TRANSACTIONS

OF THE

BROOKLYN PATHOLOGICAL SOCIETY

Edited by Claude G. Crane, M.D.

474th Regular Meeting, February, 1907.

The President, R. W. Westbrook, M.D., in the Chair.

THE AMMONIA COEFFICIENT IN DISEASE.

A paper with above title was read by Archibald Murray, M.D.

Dr. Charles Jewett stated that what he would say would relate especially to the toxemias of pregnancy, and would be mainly a reiteration, from the practical standpoint, of what Dr. Murray had already said.

From what Williams has written upon the subject, we know attention was first called to toxemia as a cause of vomiting in pregnancy by Fischl in 1894. Prior to that, in 1879, Matthews Duncan had pointed out that acute yellow atrophy of the liver was a probably cause in certain cases. Bouffe de Saint-Blaise and Champetier de Ribes presented this subject again in 1901. But the relation of toxemia to the vomiting of pregnancy was brought out more clearly by Stone in a paper read before the section on obstetrics of the New York Academy of Medicine in 1903.

While it is well established that the vomiting of pregnancy very often depends upon a toxemia, with reference to the character of the poisons and the sources of them there is as yet no definite agreement. Four possible sources have been assigned in the recent literature: (1) Gastro intestinal. (2) The ovum. (3) The ovarian secretion. (4) Lesions of the liver. That the toxic material comes from the ovum or its appendages, or that it arises from disturbances or absence of the ovarian secretion has not been established.

That the primary poison may be an intestinal toxemia is possible.

The toxemia of the vomiting of pregnancy and that of eclampsia are believed by several of our New York friends to be one and the same thing. Williams takes the ground that they are not identical, and for the reason that the clinical picture is different, the urinary picture is different and still more convincing, the pathology of the liver is different. In the vomiting of eclampsia the necrosis of the liver lobules begins at the periphery and goes inward, while in the vomiting of pregnancy the necrotic process begins in the center and extends outward. Williams believes that the ammonia coefficient is a reliable index of the intensity of the poisoning, and, consequently, a reliable indication in the treatment. This view has not been sustained by the observations of others. According to certain observers ammonia is probably increased in neurotic and reflex forms of pregnancy hyperemesis as well as the toxemic.

Again the clinical value of the ammonia coefficient in hyperemesis has been discredited by the fact, as Dr. Murray has said, that phosphorus and certain other poisons leading to acute yellow atrophy and to similar changes in the nitrogen metabolism are attended with no vomiting, and, again, in diabetes, as Sondern has pointed out, the ammonia coefficient may be very high, yet here we have no acute yellow atrophy and no vomiting. While the toxemic theory of pregnancy vomiting must be accepted the nitrogen distribution in the urinary substances probably has no such definite clinical value as Williams has assumed.

The speaker stated that what Dr. Murray had said lends some support to the theory, that the essential cause of the vomiting may be an acidosis. That view is held by Painter of New York and others. Acetone, Sondern says, is one of the first evidences found in the urine of the toxemia of pregnancy.

A pertinent suggestion of Sondern's, too, is the importance of examining the urine in hyperemesis for the usual indications of intestinal toxemia.

A case which recently came under his observation, Dr. Jewett said, might be of interest here. It was a case in which there was marked toxemia of pregnancy, yet in which, the toxemia apparently was not the most essential factor in the vomiting. The case had been reported in the *American Journal of Obstetrics.*

This woman, 34 years of age, was admitted to the Long Island College Hospital on November 26th last, in the service of his associate, Dr. William P. Pool, who had kindly permitted him to report it. She was pregnant for the fifth time. The last menses occurred October 3, 1906, and vomiting had persisted at short intervals, day and night, since November 1st. The first and second pregnancy had run a normal course. In the third and fourth the uterus had been emptied owing to hyperemesis. In the fifth pregnancy, the one he was reporting, no neurotic or reflex cause of vomiting was apparent. The cause was believed to be toxemic. Eliminative measures were of no avail and the woman became so much exhausted that Dr. Pool evacuated the uterus on the 27th. This was done mainly on the general clinical indications which Dr. Jewett thought must still remain an important if not the most important guide.

A 24-hour specimen of urine collected on the last day of the pregnancy was sent to Dr. Sondern. His findings, which were characteristic of the vomiting type of toxemia, and which, as he said, justified the belief, that acute yellow atrophy would have resulted, were in part as follows: Acetone, in large amount, B.oxybutyric acid, a moderate amount, diacetic acid, large amount; total nitrogen, in 24 hours, 10.48 per cent.; nitrogen of urea 50.2 per cent.; nitrogen of ammonia, 16.6 per cent.

Though vomiting had persisted to the moment the anesthesia began there was not a single act of vomiting after it. A like experience had happened to him in other cases. The toxemic element in such cases, great as its importance, was apparently not the sole factor in the vomiting. The abrupt termination of the vomiting after evacuting the uterus would seem to point to some reflex cause as a complicating factor.

The reflex disturbances need not necessarily proceed from the more obvious causes commonly recognized but possibly from some more or less obscure cause; such for example as irritation of the peritoneum due to the rapid growth of the uterus in the early months as suggested by a recent German writer.

TRANSACTIONS

OF THE

LONG ISLAND MEDICAL SOCIETY

SOME OBSERVATIONS FROM CASES OF SUDDEN DEATH

BY JOHN R. STIVERS, M.D.

THE frequency with which physicians are called upon to explain cases of sudden death, and the futility of explanation in many such cases has prompted me to set forth a few facts, not with a view of producing anything original, but with the idea of drawing out a full discussion of a subject which physicians are seeing with increasing frequency.

DUNGLISON states that when death occurs without any or with few of the precursory symptoms, it is called sudden death. In the common acceptance of the term, by sudden deaths are usually meant those cases which are found dead, or have been taken sick and died before the arrival of a physician.

During the past ten years it has been my lot to have seen quite a large number of such cases, and believing that other physicians have had a similar experience, and feeling that many of these cases are worthy of some discussion, I have felt justified in presenting this paper.

It is to be regretted that existing conditions render it impossible for us to have post-mortems in many cases, where it would be highly desirable from an educational standpoint, even if the pathological findings were at variance with our diagnosis.

This subject also has a medico-legal side which never fails to engage the attention of the physician and the duties and privileges of the physician in a given case, are often a matter for serious consideration. Formerly the law required that when a person died without having had a physician in attendance for the preceding twenty-four hours, and in accidental deaths, the case should be reported to the coroner. But now this has been changed, and the Board of Health allows more latitude to the physician, so that if he has seen the case within a reasonable time prior to death, and the cause of death is fairly well established, he may sign a certificate, and in such cases the Board of Health usually accepts it and issues a permit for burial. The Board of Health is also lenient in regard to issuing permits for chronic cases where the physician may not have seen his patient for several days prior to death.

We are frequently called upon to explain cases of sudden death which admit of no satisfactory explanation to ourselves, but the minds of the relatives and friends must be put at ease, so we account for the death by heart disease, apoplexy or uremia. Among other causes not infrequently mentioned are apnoea, ptomaine poisoning, embolism or thrombus, meningitis, paralysis of the heart, rupture of an aneurism, concealed hemorrhage from ulcer of stomach or duodenum, rupture or perforation of intestines, acute alcoholism, blow over the epigastrium, etc.

Following the teachings of Aristotle, Morgagni and Galen, Bichat claimed that all deaths originated in one of three ways: either they proceeded from the heart by syncope, from the head by coma or from the lungs by apnoea or asphyxia. In the light of present knowledge, however, the fact seems to be established that it is rather exceptional for death to result from an exclusive affection of the circulatory, the respiratory or the nervous systems.

BROUARDEL, a French author, who

has compiled a volume, including a vast number of cases of sudden death, states that by far the greater number of those deaths was caused by uraemic poisoning. Westcott, in the British Medical Journal, 1891, reports 1,000 deaths, of which 303 were sudden or unexpected and of the 303, 210 were caused by syncope, 64 by asphyxia and 29 from coma.

Dr. Hartung, the coroner's physician of this city states that by far the larger proportion of cases that have come under his observation, have been caused by acute dilatation of the heart following old valvular lesions. He also states that from his observation, the most infrequent cause of death is stenosis of the coronary arteries or angina pectoris.

A case is reported of a laborer who was taken sick while at work, and died suddenly within a few hours. The post-mortem revealed a moderate area of purulent meningitis. Men have died suddenly in consequence of a kick on the scrotum, also by a blow on the larynx, nose, mouth or cranium.

Brouardel, quoted above, remarks that experience teaches that violent blows over the epigastrium may cause death by irritation of the solar plexus, and consequent reflex arrest of the heart and respiration, or in other words by constriction of the arteries of cerebrum and medulla.

Sudden death may result from acute alcoholism, the toxic effect being exerted on the nerve centers.

Air in a vein will cause sudden death, and it is claimed that such deaths have resulted from abortions and even from normal deliveries and from intra-uterine irrigation.

One disease from which I believe many patients die suddenly and in which either the patient does not consult a physician, or if so the true diagnosis is often overlooked, is pneumonia. One case that came under my observation some time ago will demonstrate the force of this statement. A man 26 years of age, applied to two or more hospitals downtown for admission but being refused, walked out to the Kings County Hospital and applied there. I saw the patient soon after he reached the hospital and on admission to the ward he had a temperature of 104, pulse 120, respiration nearly 40. Examination showed his whole right lung to be consolidated. In this condition he had covered a distance on foot of fully four miles on a cold stormy day. All will agree that under those conditions it would not have been surprising had he dropped dead along the way. I mention this case as evidence of the fact that patients frequently have well-advanced attacks of pneumonia, before they even consult a physician, and it is well known that a patient walking around with a consolidated lung is in great danger of a sudden termination.

Dr. A. H. P. Looeuf, who was pathologist to St. Mary's Hospital about 20 years ago, reports a series of something like 40 cases which died from a peculiar form of pulmonary affection which he called the black congestion. The disease came on suddenly, usually at night, the accompanying symptoms being great prostration, dyspnoea, and rapid weak pulse. Death resulted in each case within a few hours.

The following are a few of the cases that have come under my observation:

Case I. About six o'clock in the morning I was called to view the body of a woman of 65, who had been found on the floor of her room when the maid went to call her. The family physician had been summoned and we inspected the body together. From the general appearance of the body, particularly the face, it appeared that the person might have died from heart trouble, probably angina, and although the person had not been under treatment, a death certificate was made out in accordance with the facts, and a permit for burial was issued.

Case II. In August, 1905, I was called at an early hour in the morning to see a child, about 2½ years of age, the father stating over the telephone that the child had just had a convulsion. I hurried to the house, and arrived just in time to see the child passing into another convulsion, which proved fatal within a moment or two. The patient had shown symptoms of illness less than 24 hours. A physician had been summoned the previous evening, but for some reason he had not arrived, and the parents not appreciating the grave nature of the illness, had made no further efforts to secure one that night

From the history of the case I concluded that the child had been suffering from an entero-colitis, and that death was the result of a convulsion produced by auto-intoxication from that disease.

Case III. A few weeks ago I was called to see a baby two weeks old. It was early in the morning, and I was asked to hurry as the child was very sick. On arriving at the house the patient was dead. The child, of previous good health, had been ill about 12 hours with cough and snuffles. Although no post-mortem was performed it was determined that the child had died from an acute pneumonia.

A few years ago I was called about midnight to see a man of 26, who was having an epileptic attack. When I arrived at the house the man was better, but his mother, a woman about 50, was suffering from a typical attack of angina pectoris from which she died within a moment or two. There was no doubt but that the attack had been brought on by nervous excitement.

While sudden deaths are bound to occur, I believe we might with reasonable certainty prevent some of them as in cases of persons who are known to have organic disease. In such cases we should lay down rules for exercise, diet, and the general mode of life, and by insisting upon a strict adherence to them may hope to prevent some of the sudden terminations which are now so prevalent.

Dr. R. W. Westbrook said, "I think this is an interesting subject, and one that requires much delving to get at the bottom of it. I have observed a number of sudden deaths, that have not been thoroughly explained. There are, of course, a good many deaths put down as surgical and so revealed on autopsy. Intestinal or stomach perforation, or the shock of rupture in ectopic pregnancy, or that connected with a volvulus in childhood, have produced instant death. Stomach and bowel hemorrhage will cause rapid death. Those cases I don't think the surgeon need discuss, as it is the autopsy which reveals the cause. Yet the autopsy in some cases does not show anything at all. As to death occurring during operations, of course the ordinary causes of hemorrhage and shock are not to be considered here; but air embolus will produce sudden death. In dissecting tubercular glands from the internal jugular, a well-known surgeon recently punctured that vein, and the patient died immediately. Murphy, when dissecting away cervical glands plugs a sponge deep down in the neck, entirely shutting off the vein. We have had in the Brooklyn Hospital a case of sudden death occurring after the aspiration of the chest. Such cases are reported. I have seen death under the anesthetic in goitre, also under chloroform where a starved individual died at the first incision into the skin, and in cases of cancer of the tongue, or septic involvement of the neck or mouth. Cases that interest me most are the cases of unexplained sudden death post-operative, occurring when the patient is still in bed. Most of these cases are due to embolism, and how to prevent them is the question. One case I had was a young woman in whom I had done an intestinal resection for strangulated femoral hernia. She sat up in bed about the tenth day, and she dropped off like a shot. She had no heart lesion. She had some temperature, I felt there was a thrombus, and an embolus was set free and had lodged in a vital centre. I recently had a case of a young woman who had symptoms of strangulation of a femoral hernia. When I operated she was three months pregnant. She showed a trace of albumen and she was very neurotic. I kept her in bed on liquid diet a while, and then I did the simple operation for femoral hernia. There was primary union. She vomited some for several days after operation and complained of epigastric distress. Ten days after the operation, after passing a good night, she sat up in bed and immediately dropped back dead. No symptoms preceded it. The woman had miscarried on the fourth day. I curetted her uterus and the moderate temperature went down. There may have been an embolus present. Possibly it was a myocarditis.

We have had several cases from time to time of pulmonary embolus or thrombus which developed symptoms of air hunger and died quickly. Those of us who saw them felt sure these were pulmonary emboli, shutting off the pulmonary circulation. As to just what causes it, whether the loss of blood, or whether the character of the blood is changed, or whether the manipulation of the parts is at fault, I have never seen gone into very much. We see cases where septic emboli are set free in the circulation, and there are cases where aseptic emboli are released. Embolism is a cause of death in these cases. I think we ought to keep our cases quiet after operation. I have a woman now who induced an abortion upon herself and was then curetted. She developed a temperature, and the next symptoms were of a left iliac phlebitis. There is an infection of some sort in her circulation at intervals. She has a chill every few days, and in the interval her temperature is normal. Three days ago she suddenly developed a temperature followed by a right-sided phlebitis. She has had various scattering pains, but she has not had a septic joint. I think she had a thrombophlebitis in the rich plexus of veins which run through the broad ligament. She was dosed with quinine before I took charge of her. I am keeping her quiet and she feels well, but I will keep her at rest for some time. As regards prevention, have the circulation in the best possible condition before operation and afterward maintain quiet a reasonable interval.

Dr. Edward E. Cornwall. What do we mean by sudden death? Death is always sudden in that it is a change from life, a condition so widely, so absolutely different from death that there can be no gradations between them. But it is not so sudden when we consider the human organism not as a living unit but as an aggregation of a vast number of living units—cells, which do not die all at once but one after another. Death from this point of view begins when any group of cells which possess a vital function in the animal economy cease to live. As commonly used I think the expression sudden death means unexpected death, death which takes place when it is not anticipated.

Among the most common causes of sudden or unexpected death is weakness of the myocardium. When this muscle becomes too feeble to empty the heart of blood against the resistance existing within or without it, the circulation stops, and the cells of the central nervous system as well as those of the rest of the body are starved, asphyxiated, and poisoned by their own retained excretions. Yet not all forms of heart disease predispose to sudden death. In the great class of valvular diseases the weakening of the myocardium relative to the work it has to do is usually gradual, allowing us to anticipate with a fair degree of accuracy the fatal termination. But in chronic degeneration of the myocardium, such as is seen in fatty heart, patients may drop dead while in apparently fair health; and in the myocardial degenerations produced by the toxemias of the infectious diseases such as diphtheria, typhoid fever or pneumonia, death often occurs without much warning.

Dr. S. H. Lutz. I have had a few experiences with sudden death, and according to Dr. Cornwall's reasoning I consider them as sudden because there was no premonition. One was a mastoid brought into the Manhattan Eye and Ear Hospital, and she had a sinus behind the ear. I uncovered the lateral sinus and found it thrombosed. I thought I had better ligate the jugular. I opened the neck and after I had gotten through the platysma I found a gush of pus and she took a deep breath and died. I found the jugular necrotic. Whether she died from an embolism of air in the vein I do not know. I think it was an embolus. In another instance, a child three years old I had intubated. The tube was left in ten or twelve days. I went over to take out the tube, the larynx contracted immediately it was out, and the child died. I did tracheotomy, but the trachea had collapsed and no air got through. I call this sudden death. The woman was in bad enough shape to die. The child was doing well, and the irritation of removing the tube brought on the spasm.

Dr. Bacon. I conclude that most sudden deaths from the surgeon's standpoint are due to shock or embolism. There is one variety of embolism not alluded to by those preceding me. I refer to the condition of fat embolism. I well remember that Dr. Roswell Park emphasized the importance of this condition, especially in abdominal and bone surgery. We are all in accord as to the importance of anal sphincteric dilation. One case comes very vividly to my mind in which the operating room nurse on her own initiative made use of this procedure, while the surgeons were performing artificial respiration and giving hypodermics, accomplishing more by dilating the sphincter than was accomplished by other methods; the patient recovered.

Dr. C. R. Hyde. In a case at the Long Island College Hospital there was pus in the chest and the patient was brought downstairs and died before an anesthetic was given to him. Autopsy showed gangrene of the lung and pericarditis. Another case occurred in my obstetrical service. I had just delivered a breech and was cleaning up when she had a severe hemorrhage, and I told the house physician to give a hot douche. The nurse who was given the order was a new one and she rigged the apparatus up high. It was turned on and the woman died of air embolism.

TRANSACTIONS
OF THE
BROOKLYN SURGICAL SOCIETY

Regular Meeting, March 7, 1907.

The President, O. A. Gordon, M.D., in the Chair.

THYROIDECTOMY.

Dr. F. H. Knight presented a young lady patient, who came to him in the dispensary last autumn, and was treated there for goitre, with belladonna for some time with practically no benefit at all. The goitre would at times get smaller, and then again would enlarge, and it finally began to cause dyspnoea, dysphagia and a good deal of pain, so that it was decided to remove at least one lobe of the goitre. One lobe was about twice the size of the other lobe, and he thought, of course, that he would remove the larger lobe, but Dr. Howe suggested looking down into the trachea with his tracheoscope, and he found that the small lobe was the one which was constricting the trachea about one-half, while the larger lobe was producing no effect on the trachea at all, so it was the smaller lobe that was removed. The neck measured 14½ inches before the operation. To-day it measures 12½ inches.

The interesting part of the case, the speaker said was that the small lobe was the one which was doing the damage, and had it not been for the tracheoscope, he certainly would have removed the larger lobe and see if the remaining lobe would not contract itself.

Another point he wanted to speak of was the bloodless character of the operation. Many speak of the bloody character of the operation for goitre, and some people use constriction about the limbs and elevation of the head of the table, neither of which was done in this case. There was hardly any blood lost.

Dr. M. Figueira stated that in the first place the doctor did not say whether this was a simple case of goitre, or whether it was an exophthalmic case. At that girl's age and with the good pulse he noticed she had, the suspicion arose whether it was a case of exophthalmic goitre at all, and it was interesting in this case to know if it was a plain case, because the two cases are different in pathology.

In regard to the results of the examination by the tracheoscope, though the doctor makes a point through the fact that he removed the small lobe, the chances are when one of the lobes was removed and the isthmus divided, the pressure would be relieved anyway—whether the large or small lobe it would make no difference, but where there is a large lobe he thought it poor practice to leave it there. He thought it better to remove all, except a part of the enlarged lobe. Sometimes there is a third lobe, he stated.

The doctor seemed to think these operations are not bloodless, because he happened to strike one that was easy. If he comes across a case four or five times as large as this one, in which the superficial arteries are large and the tumor adherent, he probably will have a different story to tell.

EXCISION OF CERVICAL SYMPATHETIC FOR EPILEPSY.

Dr. W. Linder said that his object in presenting this case was to interest surgeons to perform this operaion more frequently in suitable cases. There had been a sufficient number of cases recorded, he said, to warrant the undertaking of this operation. The function of the cervical sympathetic is to control the muscular action of the cerebral blood-vessels; to transmit impulses from the stomach, intestines and lungs and to innervate the dilator muscles of the pupils and also the unstriated muscles of the lids.

The most probable theory of epilepsy, the speaker said, is that there is some circulatory disturbance in the brain. The cervical sympathetic ganglia contain the vasoconstrictor nerves and the excision of these structures prevents vascular spasm; therefore, the lumen of the blood vessels is permanently dilated, which increases the nutritive supply to the cerebral nerve cells, and, as a result of this increased blood supply, toxic substances are also more readily removed from the brain tissue. The removal of these nerves is on the same principle as the use of amyl nitrite during the epileptic seizure, converting cerebral anemia into hyperemia by dilating the cerebral blood vessels. The excision of the ganglia also prevents the transmission of impulses from the viscera, and is, necessarily, of value in reflex epilepsy.

Winter presents the result of the bromide treatment, as afforded by the two great institutions at Bielefeld and Bethel. Of 8,000 patients treated at Bielefeld the percentages stand: Cured, 1.72 per cent.; improved, 3.35 percent. At Bethel the results are better, i. e.: Cured, 7.7 per cent.; improved, 22 per cent. Even here, however, at Bethel, patients who have gone but one year without a seizure are counted as cured; were the limit placed at three years, one may readily understand that the percentages would be far less favorable. As Winter reminds us, "The results of operation on the sympathetic are much more brilliant than these."

The excision of the cervical sympathetic is easy enough. The incision is made over the sternomastoid. The speaker said he found that the flat sternomastoid at its center afforded the best opportunity. Beneath the prevertebral fascia we see the nerve. On the right side he was able to detect the small middle ganglia, then following up the nerve he was able to find the superior ganglia, which was quite enlarged and easy to recognize, which also assured him that he had the right nerve. Following the nerve downward and liberating the middle ganglion from the inferior thyroid vessel, he was able with an aneurysm needle to retract the vertebral vessels, and without any difficulty was able to excise the inferior ganglion. This patient was recently operated on and he could not show her as cured.

When the patient was only eight years old she had her first attack, and used to get them as often as four or five a day. Since the operation she has had one severe attack in the hospital, and subsequently had six small attacks of petit mal. There was one condition here that he wished to mention. She had had considerable trouble with her eyes and wore glasses. Since the operation she can do better without her glasses.

RUPTURED SPLEEN.

Dr. W. Linder stated that the patient he presented, a boy about nine years old, was operated on seven weeks ago. He got into an unfinished building, and running accross some beams fell across one of them. Fearing the watchman was after him he jumped out of a window and struck on a rock. The speaker saw him two days later. He was under the influence of morphine, still he had considerable pain and tenderness and rigid recti muscles. He was able on percussion to elicit dullness, and he thought there was some fluid in the peritoneal cavity. His pulse was rapid, 140, respirations 40, temperature 101. His general condition was poor. His abdomen was tender on pressure all over, but particularly he had severe pain over the splenic region. He did not have a bowel movement, but gave a history of passing some gas following an enema. From the extreme excruciating pain over the splenic region, the speaker ventured a diagnosis of rupture of the spleen. He had the patient removed to the German Hospital. Incision revealed free fluid in the peritoneal cavity. After hasty examination of the mesentery, finding the vessels not bleeding, he freely exposed the abdomen, found the spleen ruptured diagonally across about the upper pole and crossing to the lower pole. There was a clot of blood about one-fourth inch deep in the spleen. He washed the pelvis and kidney regions, and finding the water returned clear, he filled the cavity with salt solution, closed without drainage, and the boy made an uneventful recovery.

The point he wished to make was, that the boy got well because he did not interfere with him. Cases where manipulation has been done invariably die.

Dr. M. Figueira said that the doctor in presenting the case of ruptured spleen concluded by saying that the cases that are interfered with die. He begged to differ with him, because there have reported five or six cases of ruptured spleen, where the rupture was so severe that the spleen was removed, and the patients got well. Cases have been reported in which the splenic artery and vein were ligated, pieces of the spleen removed, and the patients got well.

Dr. W. Linder replied that in three cases he had seen where an attempt had been made to suture the spleen, they all died. Barton reported a case where the spleen was ruptured—it was practically lying loose in the peritoneal cavity, and all he thought he would have to do was to lift it out, but in lifting it out he disturbed the clots, and the patient died of hemorrhage. He remarks in his paper, that hereafter he will not meddle with spleens, and advises against interference. If there was active bleeding, the speaker thought we ought to pack. The least manipulation or disturbance of the clots, which is taking care of hemorrhage, particularly where we see the cases 24 to 36 hours after injury. Nature takes care of those cases pretty well, and interference, in his opinion, he thought would be ill advised.

ABSCESS OF THE KIDNEY NOT CAUSED BY STONE, WITH REPORT OF CASES.

A paper with the above title was read by John A. Lee, M.D.

TRANSACTIONS
OF THE
BROOKLYN GYNECOLOGICAL SOCIETY

A. A. HUSSEY, M.D., EDITOR.

Stated Meeting, March 1, 1907.

The President, R. H. POMEROY, M.D., in the Chair.

SEPTIC PERITONITIS FOLLOWED BY INTESTINAL OBSTRUCTION NINE DAYS AFTER OPERATION.

DR. W. P. POOL related the case of a patient 23 years of age, in the seventh month of pregnancy. She became ill on the night of January 7th with an acute attack of pain in the lower abdomen, and irritability of the bladder; frequent urinations; the urine containing blood according to her statement. She consulted her family physician and was treated by him for several days, the condition remaining about the same. She also had a pain at the time in the right side of the abdomen and in the back on the right side in the region of the right kidney. There was at this time, he believed, no fever. On January 10th Dr. Rushmore was called in consultation, and on going carefully over the case suggested the presence of a renal calculus, although the speaker believed he did not commit himself absolutely to that diagnosis. Further examination for this condition was impossible at the time.

On January 11th a premature labor occurred. This was a rapid delivery, so much so that the baby and placenta were both born before the doctor got to the case. Immediately following this was a rise in temperature and pulse and acute pain in the abdomen. The abdomen became distended, and on January 12th Dr. Jewett saw the patient. He suggested her removal to the hospital to be under observation with a view to operating, if necessary. On admission to the hospital she had symptoms of general peritonitis, pulse 120 to 130, temperature 103 and great pain. The pain was not localized in any part of the abdomen, but she seemed equally tender in all portions. In view of the fact that it was impossible to localize the trouble with any accuracy, he decided upon tentative treatment for a time. Colonic irrigations with measures of support were used. The next day, January 13, the pain seemed to be more localized on her right side near the region of the appendix. The distension was increased, the pulse began to creep up. It reached 145 and the temperature rose to 104. In view of these symptoms it was decided to operate.

The speaker made an incision over the appendix, and found the abdominal cavity filled with a cloudy fluid. The intestines, the parietal peritoneum and the omentum were all very much inflamed. A few adhesions were found around the caput coli, but they were very inconsiderable. The appendix was a little stump, scarcely an inch long, and certainly was not the cause of the trouble. Through this incision he was able to palpate the ovaries, tubes and uterus and the gall bladder. None of these organs appeared to be in any way diseased; the appendix, however, was removed. The abdomen was flushed out thoroughly with saline solution, and the wound closed; at the lower angle, a drainage tube was left. Colonic irrigation was continued for several days. The patient was put in bed in Fowler's position and immediately began to improve; the temperature and pulse came down until at the end of a week she appeared to be well on the road to recovery. On the ninth day she became obstinately constipated and began vomiting. The vomiting rapidly became fecal. The next day, January

23d, the symptoms of intestinal obstruction became more marked, obstinate constipation and continued fecal vomiting with rising pulse and practically normal temperature. The wound was reopened; he found the intestines cut off by adhesions with the omentum in four places; in one place particularly the omentum was wrapped directly around the intestine and was adherent to the mesentery on the opposite side, cutting the intestine off at that point. Behind this, the bowel was much distended and injected. In front of it the bowel was flat. This was in the ileum about one foot from the caput. The adhesions were broken up and the raw places covered over with the Lembert suture and a considerable portion of the omentum was removed. All over, the general peritonitis had greatly subsided; the inflamed appearance of the peritoneum was gone, and there was no fluid in the peritoneal cavity, as had been found in the first operation. From that time on the patient did fairly well. At first, the bowels did not respond readily. This was overcome with the help of eserine and continued colonic irrigations. The wound was drained for two weeks. This was partly by gauze and partly by drainage tube. These were finally removed and the patient made a gradual recovery. She is in the hospital at the present time, but he believed that she is out of danger.

The interesting feature in this case to the speaker was the cause of the peritonitis. He regretted very much that a culture was not made of the fluid at the time of the first operation. He did not believe, however, that it was tubercular peritonitis; the history did not show it. And the appearance of the peritoneum and the abdominal cavity was not that of a tubercular peritonitis. He believed he had to do with a septic infection from some source. Another interesting feature was this method of treating a general peritonitis of septic origin.

Dr. C. Jewett said when he saw this woman she was suffering from a septic peritonitis which had developed before delivery and which had caused the premature birth. At the time of his visit, after delivery, the irritability fo the bladder, and the tenderness noted by Dr. Rushmore, about the kidney had disappeared, but there was localized pain and tenderness in the right iliac fossa and he assumed that the origin of the peritonitis was appendical and referred the woman to the hospital for operation.

The source of the infection could not be determined at operation.

The surgical treatment of the diffused peritonitis had been the subject of several recent papers. A considerable proportion of cases of otherwise fatal septic peritonitis may be saved by surgical treatment. The technic is well set forth in a recent paper by Mumford, of Boston. The abdomen is opened in the median line, the source of the trouble treated and drains placed one above the pubes and another through the vagina; no irrigation is practiced as a rule. The drains may be gauze but the speaker said he preferred perforated tubing of rubber tissue carrying several ropes of gauze. The patient is kept for a time in Fowler's position. Water and sometimes nutrient liquids are supplied by Murphy's seeping process.

With regard to eserine, the speaker stated that Dr. C. R. Hyde had condemned it after using it a few times, because it appeared to cause depression of the heart. Dr. Jewett said that he had made extensive use of it as a routine measure after laparotomies and had never observed depressing effects. Recently he had been interested to know that Dawbarn commends it as a cardiac stimulant. Careful observations which he had made since seemed to confirm Dawbarn's claim.

The drug in his hands had proved of distinct value in the treatment of partial post operative paresis of the intestine and as a means of preventing it.

Dr. R. H. Pomeroy said that Dr. Pool's case recalled one in which he did a laparotomy eight or nine years ago. The woman was five months pregnant, and had an indefinite ailment for a week or ten days preceding the time he saw her in consultation. He found her with positive evidences of a diffuse peritonitis, and decided that at least an exploratory operation was advisable. Exploration revealed a perforation in the small intestine and several other ulcerated points which were about to perforate. The perforation was closed by Lembert suture, and several other points of evident ulceration, which were not perforated, were turned in. The patient survived about ten days. She aborted shortly after the operation. The disease followed an almost typical typhoid course during the ten days. She died apparently with a recurrence of the general septic peritonitis. He presumed (no autopsy was made) that there was a perforation at some other point.

Of course, the speaker said, the question arises in such a history as that Dr. Pool relates as to the possibility of there being an intestinal perforation of some obscure character at some other point, that might possibly have become sufficiently healed over, after the primary drainage, by adhesions to have enabled the patient to recover as his patient did. He raised that point in view of the pathological findings in the case he mentioned.

Dr. W. B. Chase said the outcome of the different methods of treatment in diffuse septic peritonitis certainly give the hope that more prompt application of the newer methods would save human life. In any case where he had occasion to use drainage other than gauze, particularly when he had used rubber tubing, the longer he used it the more uneasy he had felt until he got it out, fearing that contract with the intestine would produce perforation. It seemed to him that rubber tubing coming in contact with the peritoneal surface of the intestine is likely to provoke necrosis and cause trouble, and he had been particularly anxious in these cases to get rid of tubal drainage at the earliest date possible and substitute gauze in place of it.

Dr. C. Jewett thought the objections which Dr. Chase alluded to did not apply to tubes of rubber tissue. They are as soft and pliable as gauze. They are easily removed without pain or injury to the tissues. With ordinary soft rubber tubing, however, he did not remember to have had fecal fistulæ except in two or three tuberculous cases. But he did not allow the tube to rest against the gut.

Dr. C. Jewett alluded to the Ochsner method in peritonitis as applied during the first few days after operation, not as a substitute for operation. Here it seems rational. Peristalsis is diminished and absorption, which it is that kills, is limited accordingly. The temperature is lowered and the patient gets along better. Kelly has done something like this in his egg albumin feeding. It had apparently served him well in a good many instances.

Dr. H. C. Keenan said that he only recalled one case in which the starvation method was employed, and that was on account of acute dilatation of the stomach following a hysterectomy. Dr. MacEvitt read a paper before the Surgical Society on this acute dilatation of the stomach following operation. About five or six weeks ago a hysterectomy was done at St. Mary's Hospital, and about two days after the woman began to complain of extreme distention of the abdomen, great difficulty of breathing, and everything that was taken into the stomach was vomited. On examination it was found that the stomach was very much dilated. This patient had the stomach washed out several times. All feeding was done through the retcum, and a number of saline enemata were given. Under this treatment the patient's condition cleared up rapidly, the vomiting stopped in twenty-four hours entirely, the temperature dropped, the dilatation of the stomach went down completely, and the patient was in much better condition. The starvation treatment was kept up about four or five days, until it was positive her stomach was in good shape, and then she was put on a light liquid diet. The starvation treatment in this case was done entirely on account of the stomach.

HYSTERECTOMY FOR ABSCESS OF UTERUS.

Dr. J. F. Todd presenting a specimen said it was a uterus, which had been removed by Dr. Baldwin. Little history could be obtained as the patient was an Italian and spoke no English. She was 27 years of age and married. This was her eighth pregnancy. She had seven children and one miscarriage. The last child was six weeks ago. She was delivered by a midwife and a physician was called in on the fifteenth day.

The speaker said that the case was of interest because of the fact that the lesion consisted principally of an abscess in the anterior wall of the uterus. Besides the opening anteriorly wherein the pus was contained, there was an opening in the fundus where a curet went through the uterus. The specimen showed the softness of the uterus all the way through. Dr. Todd said this was the only case which he recalled where Dr. Baldwin had removed a uterus for sepsis; in the majority of cases the pus was in either horn of the uterus, or in some place where it could be drained, but on account of the anterior position and the lowness of the infection, it was deemed best to remove the uterus and not attempt to drain it.

Dr. L. G. Baldwin said the case was of unusual interest to him, because, in the first place, abscesses in the uterine wall following labor, or localized abscesses, are comparatively rare. An abscess in a horn of the uterus, an extension from a pus tube, is not particularly unusual, and they are easily handled; they can either be enucleated, as the horn of the uterus is cut away with the tube, or they can be drained.

This woman had a great deal of abdominal pain. That was her chief symptom. She had a mass anterior to the uterus and high up in the pelvis, which could be felt before operation. She was sent in with a diagnosis of pyosalpinx. As, the speaker said, he had never seen a case of pyosalpinx, pure and simple, following labor, he discarded that diagnosis and did not consider that it was a pyosalpinx.

On opening the abdomen a portion of the intestines was found adherent all over the right side of the uterus, and the bladder was adherent anteriorly over this opening in the uterus, which had been pointed out. As the bladder was pulled off in front, then this mass in the uterus showed itself. On slight pressure it broke and pus came out. Prior to the abdominal section Dr. Baldwin had introduced a curet up into the uterus. To the left side where the trouble was it remained firm. He did a moderate curetting, and as he swung the curet to the right side of the uterus, it went immediately through. Whether there was a hole there before that time he did not know. The history of the case was very incomplete, and whether she had been curetted prior to entrance into the hospital he did not know. The doctor said there had been no instrumental interference, otherwise than irrigation, and it was very plain that the wound through the uterus was a recent one. The speaker said that in passing his finger into the abscess cavity, it seemed so very soft, that he thought probably the whole of the uterus was in about the same condition, and he simply poked his finger through the upper hole. He found at the point of puncture that the uterine wall was not more than 1-16 inch thick, and it seemed best to remove the uterus rather than to try and drain it and leave it in. The left broad ligament was found thick and indurated and the whole mass on that side infected, whereas on the right side of the uterus the broad ligament is perfectly normal.

The case shows how perfectly easy it is for a curet to go through the uterus without the slightest effort. It is perfectly apparent why it should go through, as the uterus is not thicker than a piece of pasteboard.

BOOK REVIEWS

ORGANIC and FUNCTIONAL NERVOUS DISEASES, by M. ALLEN STARR, M. D., etc. Second Ed. Lea Brothers, 1907, pp. 816.

By the addition of Part II (pp. 86) on Functional Diseases, this work now becomes available as a standard text-book. Otherwise the review of the first issue (*v. Bkn. Med. Jrnl.,* 1904, May) is fairly applicable to this. References to certain features and minor criticisms only need be made.

Mental disorders are not included, unless casually as in a chapter on maldevelopment of the brain. General symptomatology is also properly relegated elsewhere. Favorite subjects with the writer, as multiple neuritis and brain surgery, come in naturally for a large share of attention. Some useful differentiation of forms of writer's cramp might have been introduced. It is doubtful if headache from general anemia is "felt chiefly, on the vertex," p. 480. Acromegaly Myxœdema, etc., do not appear to be included. He frankly acknowledges the unsatisfactoriness of treatment in toricollis. In his description of the arterial supply of the cerebrum (p. 476) he overlooks the fact that branches in the pia do not anastomose sufficiently to prevent softening when one of much size is blocked. His insistance on two or three weeks in bed after apoplexy is unnecessary long as a rule. Treatment is still a most satisfactory feature of the book.

Any work of this size is bound to show some slips. It can be recommended as scientific, practical, clearly written, well printed, and admirably adapted to the physician's or student's use. W. B.

ESSENTIALS OF OBSTETRICS, by CHARLES JEWETT, A.M., M.D., Sc. D., Professor of Obstetrics and Gynecology Long Island College Hospital, and Obstetrician and Gynecologist to the Hospital, etc., assisted by Harold F. Jewett, M.D. Third edition, revised and enlarged. Illustrated by 80 illustrations and 5 colored plates. Lea Brothers and Company, New York and Philadelphia, 1907.

In the third edition of this valuable little book, there is much to commend, for the author has placed before the reader in a clear, concise, yet comprehensive manner the esseential facts and principles of obstetrics. And while the purpose of the work is primarily to serve the needs of the student in preparing for his examinations and to teach him the essentials of obstetrics, the practitioner will find it invaluable as a ready reference, to supplement his waning obstetric knowledge in emergencies.

In a matter of treatment Dr. Jewett endorses such procedures as have stood the test of experience, while mention is made of the more radical operations. Much of the book has been rewritten and brought up to date and the chapters on embryology, the physiology of labor, the pathology of labor and obstetric surgery deserves special commendation for the sound teaching contained in them. The book is well printed.

J. O. POLAK.

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The Relation of Rhino-Pharyngeal Affections to Neurology.

I. OBSTRUCTION OF THE UPPER RESPIRATORY TRACT.

By W. F. DUDLEY, M.D.

BROOKLYN-NEW YORK.

THE physical deformities that result from obstruction of the nose and naso-pharynx are now recognized by the majority of intelligent and observant people, and there is a growing appreciation of the importance of early and radical surgical treatment. The mal-formed face, the contracted chest, and the undersized body are visible defects and constitute a potent argument in favor of operative relief.

There are other results, however, which may be less obviously associated with obstructed respiration, but which, if neglected, are equally damaging to the future of the patient. I refer to impairment of certain of the special senses, including smell, taste, hearing, and sight; and, further, to an impairment of mentality, which is manifested at first by aprosexia, and later by hebetude.

The obstructions under consideration include hypertrophy of the turbinated bodies, deflection and thickening of the nasal septum, nasal myxomata, and hypertrophy of the pharyngeal and faucial tonsils. Septal deformities may be caused by traumatism; but with few exceptions they result from unequal structural development. Tonsillar enlargement may be congenital. I have seen eight such cases, and was obliged to operate upon one infant five days old and upon another three weeks old for complete stenosis from lymphoid tissue in the naso-pharynx. The usual causes of hypertrophy of the tonsils are recurrent, acute, catarrhal inflammations, the infectious diseases of childhood, and the unhygienic conditions attendant upon urban life. Under the latter heading, I would refer in particular to the impure and dust-laden air we are compelled to breathe in our improperly cleaned streets, and also to the quality of the indoor air of our homes, which generally is overheated and deficient in humidity.

Obstructions of the upper air tract affect the nerves of special sense, not by originating pathological processes in their terminal filaments, but by mechanically interfering with the accomplishment of their physiological functions.

1. The olfactory bulb projects about twenty-five olfactory threads from its inferior surface.

These nerves, sheathed in processes of the dura mater, pass through foramina in the cribriform plate into the upper nasal cavities; they form a close network upon the superior turbinated bones and the upper portion of the middle, turbinated bones, and from this plexus, minute branches radiate to the olfactory mucous membrane.

To perform their functions the terminal olfactory filaments must be accessible to the odoriferous particles contained in the inspired air current; this is impossible when stenosis exists, whether the obstruction is in the nose or in the naso-pharynx and anosmia results. The sense of smell is regained when the stenosis is relieved, excepting cases of marked polypoid degeneration of the middle and upper turbinated bodies, and those in which there is hyperplasia of the sub-mucous tissue of the same tract from long-continued inflammation.

2. The sense of taste is affected mainly by the extreme dryness of the oro-pharynx and the thick coating upon the tongue that is associated with mouth breathing.

3. The sense of sight: Catarrhal inflammation of the nasal mucous membrane frequently gives rise to similar affection of the conjunctiva by extension through the lachrymal duct. Hypertrophy of the middle turbinated bodies, when sufficient to make pressure on the septum, may cause, through the medium of the ophthalmic division of the trigeminus, weakness and lack of endurance of vision and orbital pain.

4. Sense of hearing: Hypertrophy of the lymphoid tissues of the naso-pharynx is a prolific source of aural disease; impairment of hearing exists in over 60 per cent. of these cases, and I believe this is a conservative estimate. Catarrhal inflammation of the Eustachian tube is the most frequent result, but acute suppurative otitis media of the recurrent type is a not uncommon sequence and ear complications may occur when the pharyngeal tonsil is only moderately enlarged. I regard this observation as worthy of emphasis: that the degree of involvement of the ears does not necessarily depend upon or correspond to the extent of obstruction of the naso-pharynx.

The aural complication may be due to a gradual extension of the catarrhal process, or to direct pressure of the hypertrophied mass upon the Eustachian orifice.

Cases of obstruction of the naso-pharynx, which are not subjected to surgical treatment, usually experience some relief of symptoms soon after the age of puberty; this is due to the rapid development of the bones of the head, with a corresponding increase in size of the cavities of the head, and also to atrophy of the lymphoid tissue, which progresses as the age advances. Such cases almost invariably develop chronic catarrhal inflammation of the post-nasal space, and of the Eustachian tubes. In the absence of proper treatment, there further results infiltration of the sub-mucous tissue of the tubal membrane, diminution of the lumen of the tube, tinnitis, vertigo, and permanent impairment of hearing; these symptoms are persistent and intractable to treatment. The disease is one of the most unsatisfactory that comes under the care of the aurist.

There is no more interesting phase of this subject than the effect produced by nasal obstruction upon the mentality. A relationship which should be more generally recognized by parents and instructors as well as by physicians.

Two factors contribute toward disturbance of the mental stability.

First factor: Diminution of the air supply from the mechanical obstruction of the upper respiratory tract. Mouth breathing cannot afford adequate compensation, because the aperture between the lower margin of the soft palate and the base of the tongue is very narrow; in many normal throats these parts are actually in contact. When lymphoid hypertrophy is pronounced, there is interference with oral as well as with nasal respiration, for the post-nasal growth then forces the velum downward and forward against the tongue. The respiratory efforts at night of young children, so afflicted, are distressing to witness, and it is evident that sleep brings to them neither physical nor mental rest. The supply of oxygen is decreased and the elimination of carbonic dioxid gas is imperfect; both defects disturb the efficiency of the nervous system, and if the conditions are prolonged, mental development is either retarded or perverted.

Second factor: Intra-cranial irritation from absorption of abnormal nasal secretion.

Patients having obstruction in any portion of the upper air-tract are extremely susceptible to acute coryza; they recover slowly, the third stage being prolonged, and the attacks recur with discouraging frequency. In time there results a chronic catarrhal inflammation of the mucous membrane, varying in intensity with the climatic conditions. The nasal secretions become viscid, muco-purulent, and irritating; proper drainage of the nasal cavities is prevented by the obstruction and the retained secretions rapidly retrograde; they remain for indefinite periods in contact with absorbents leading directly into the cranial cavity. This communication is established through the lymphatic tissues of the olfactory region and the sub-dural and sub-arachnoid lymph spaces; each olfactory filament in its passage through the cribriform plate being accompanied by a peri-neural lymph-sheath.

The degree of mental disturbance usually bears a direct ratio to the amount of obstruction, yet the nature of the symptoms manifested varies greatly in patients of diverse temperaments. Thus the patient of nervous temperament may show irritability of temper upon the slightest pretext; violent outbursts of anger without attempt at self-control, dissatisfaction with home conditions, lack of consideration for others, and morbid sensitiveness if criticised. He may be fickle in his tastes and crave for new and unreasonable diversions, and yet nothing brings to him contentment.

The phlegmatic type of patient may be prone to become sullen, surly, and stubborn. He may be unresponsive to kindness and shun natural companionship; he may be very difficult to control, and if his environment is unfortunate, he may develop destructive or vicious tastes. He inclines toward the degenerate.

All cases of obstruction show in common a diminished power of mental concentration and of continued mental effort. The memory is uncertain and unretentive. The mental dullness is apparent; the patient is often conscious of it, and loses confidence in himself.

Many of the abnormal mental conditions which I have included among the consequences of obstruction are found only in extreme cases, and certain of the symptoms are possible only when treatment has been neglected.

In an incipient or modified form, however, some of these symptoms are exhibited in all but exceptional cases, and the possible results of non-interference should not be forgotten.

II. NASAL DISEASE: ITS RELATION TO THE TRIFACIAL NERVE.*

By CHARLES N. COX, M.D.,

BROOKLYN-NEW YORK.

AS a preliminary, let us for a moment refresh our memory as to the anatomical and physiological relations of the trigeminal nerve to the nose and accessory sinuses.

The fifth nerve has three great divisions: the ophthalmic, the superior maxillary, and the inferior maxillary. The ophthalmic and the superior maxillary have no motor power; while the inferior maxillary is both motor and sensory in its function. The nasal branch of the ophthalmic division is the nerve chiefly concerned in the innervation of the nose and its accessory cavities, having ramifications which are distributed, respectively, to the septum, the mucous membrane and integument, the frontal sinus, and ethmoid cells.

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*Read by invitation before the Brooklyn Society for Neurology, March 28, 1906.

The maxillary antrum is supplied, for the most part, by branches from the superior maxillary division.

I have said that the ophthalmic and superior maxillary divisions of the trifacial nerve have no motor power. There is, however, a vaso-motorial influence possessed by the ophthalmic nerve; but these effects are dependent upon filaments given to it by the sympathetic nerve (1). Beside the efferent fibres possessed by the trigeminal nerve, there exist certain unnamed fibres which control the proper nutrition of the eye, nose, and other portions of the face (2). Their existence is indicated by the fact that, after section of the fifth nerve, the cornea becomes cloudy, the mucous membrane of the nose is disorganized and destroyed, and ulcers frequently make their appearance on the mucous membrane of the lips and gums—all of which are manifestations of *trophic disturbances. Irritation of one branch of the fifth nerve can create disease at the seat of distribution of another branch of the same nerve* (3). This fact is so well established as to be axiomatic.

Having considered, in this brief and cursory manner, the anatomy and physiology of the trifacial nerve, let us see what effect nasal disease may have upon it. In speaking of nasal disease I shall, of course, include diseased conditions of the accessory sinuses of the nose.

The most important effect of nasal disease upon the trigeminal nerve, the one fraught with the most far-reaching and painful consequences, is *neuralgia;* the latter may manifest itself at the seat of disease, or it may be reflected to any region supplied by that great pain-bearing nerve. Trigeminal neuralgia is more often due to diseased processes in the nose and accessory sinuses than is generally acknowledged, I think, although this cause has been more generally recognized within a few years past. I have seen several cases of erosion and ulceration of the mucous membrane of the nasal septum in which there were, at times, neuralgic pains referred to different parts of the face, and in which the intra-nasal condition was not suspected by the patient as a cause of the pain; yet, treatment and healing of these ulcerated areas was followed by immediate and entire relief of neuralgic pain.

In my experience, a relatively common cause of neuralgic pains is enlargement of the middle turbinal, so that pressure is exerted against the septum. The condition is apt to be much aggravated if there be a sharp ridge or spur on the septum associated with it. Sometimes, indeed, the middle turbinal is not much enlarged, but the anterior end is misshapen and bent over too much toward the median line, so as to cause contact with and pressure upon the septum. Perhaps the latter may be deviated toward the former to such an extent as to cause presure. In either event, removal of the anterior end, or cap, of the turbinal will often produce the happiest results. In some cases, of course, where the septum is the greater offender, the end can be better accomplished by straightening that part or removing the projecting ridge or spur. As a striking example of the latter condition, and of the very pleasing amelioration of a distressing complaint, I might perhaps be permitted to describe a case.

Mr. T. W. M., about four and a half years ago, was referred to me by his physician for the treatment of severe neuralgic headaches, the cause of which he suspected might be of nasal origin. The pain was irregularly periodic and very severe. The patient had suffered with it for many years, and it was increasing in severity. Its location was mainly over the forehead. His eyes had been looked after, as well as every other possible local or general cause, except that of the nose. He was anemic and was also charged with being *neurotic.* I found a sharp spur, high up and well back, on the right side of the septum, pressing upon (in fact, indenting) the middle turbinal. The spur was removed with a saw. The patient was cured of his headaches and has been free from them ever since. I might mention also, incidentally, that he was at the same time relieved of a troublesome tinnitus in the right ear; and his general condition is much improved.

Diseased conditions within the accessory sinuses are, perhaps, more often the cause of facial neuralgia than are morbid processes within the nasal passages. Supra-orbital neuralgia is a frequent symptom of disease of the frontal sinuses. Either acute catarrhal inflammation, or acute or chronic suppuration of these sinuses may lead to a typical neuralgia of the first division of the fifth nerve.

Neuralgia of the infra-orbital nerve may occur in connection with disease of the antrum of Highmore. Although the infra-orbital nerve is nearer to the maxillary antrum than is the supra-orbital nerve to the frontal sinus, neuralgia of the infra-orbital nerve is less common than that of the supra-orbital nerve. Friedrich (4) explains this by the difference in drainage conditions of the two sinuses. For while the maxillary antrum is not so well adapted to drainage as is the frontal sinus, because its outlet is in its upper part, while that of the latter is at the bottom, yet the former, although it may not be well adapted to empty itself, is still not so often subjected to pressure of confined pus, because its outlet into the nose is less subject to obstruction than is the narrow infundibulum of the frontal sinus. As a consequence of this difference in the drainage conditions of the two cavities, the supra-orbital nerve is more likely to be subjected to pressure from confined pus or inflammatory products within the frontal sinus than is the infra-orbital nerve in the upper wall of the maxillary antrum, where, though the cavity may ever be full of pus, great pressure is not often brought to bear, for the reason above explained.

Ethmoid disease produces frontal and temporal pain and pain over the bridge of the nose.

Suppuration or other inflammatory disease within the sphenoid cavity frequently causes occipital, vertical, frontal and temporal pain or headache.

Many cases of trifacial neuralgia, varying from slight, evanescent pains to the most intolerable and agonizing *tic,* have had their origin traced, in recent years, to suppuration of the accessory sinuses. In every case of obscure pain about the head or face, these cavities should be suspected and thoroughly searched for any evidence of disease—especially chronic suppuration. Of course it cannot be denied that it is sometimes extremely difficult to exclude the possibility of disease within a certain sinus, particularly in those cases where there is periodical retention of pus, so that no evidence of the suppurating process can be detected within the nasal passages except at intervals when the overcharged cavity discharges a part of its contents. Repeated observation at other times may fail to elicit the presence of pus.

On the other hand, we may have extensive purulent inflammation of one, several, or even all of the sinuses on both sides, without producing any pain whatever. In these cases there is free drainage. *If, however, pus be found coming from any accessory sinus, in a patient suffering from trifacial neuralgia in whom other causes are not manifest, the evidence is presumptive of the sinusal origin of the disease.*

Furthermore, no operation such as resection of any branch of the trifacial nerve should be undertaken for the cure of neuralgia, until it has been definitely determined that no disease exists within any of the accessory cavities of the nose.

Not long ago I witnessed the very serious operation of resection of the Gasserian ganglion where no previous inquiry had been instituted as to the condition of the peripheral branches of the fifth nerve within the sinuses. No one would think of resorting to such radical procedures without ascertaining the state of the teeth, for instance. In the light of present day knowledge, the nasal accessory cavities are only a little less deserving of such scrutiny.

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III. THE ACCESSORY SINUSES AND MENINGITIS.

By CHAS. W. STICKLE, M.D.,

THE etiology of meningitis has been a subject for research and discussion for many years, but the relation of pathologic conditions in the nasal accessory sinuses to meningitis has been brought prominently before the profession more recently, as a result of the knowledge of a specific form of the disease, and the late investigations in accessory sinus surgery.

From an accessory sinus standpoint the statistics which are available in a certain class of cases are still unsatisfactory, due to the fact that, in this country, a sufficient number of cases has not been grouped to allow of intra-nasal examinations before the onset of the disease, and in other countries, because they failed to do so when the opportunity was presented.

In presenting the relations of these inflammatory conditions the following classification of meningeal disturbances suggests itself. (1) The non-suppurative; (2) the suppurative; (3) the specific, or cerebro-spinal. The last, while a suppurative inflammation, is classed by itself because of its distinct etiological origin. The most important factor in relational infections is that of anatomical contiguity, whether it be by contact of the cavities, or through or along the various channels which communicate one with the other. The exact mode of infection, in the latter case, is still more or less obscure.

In the first class, non-suppurative, there is no doubt but that we see what Douglass describes as "a low grade of Pachymeningitis." "In addition to head-pains and ocular disturbances, there may be other symptoms of a general character; fever, evidence of cerebral irritation and congestion, neurasthenia and gastric disturbances; the increased and irregular temperature is due to pus absorption."

I have a case under observation which is a good example of such a meningeal disturbance.

R. V. D., 16 years—January 23d, 1906. Diagnosis of double ethmoiditis with polyps. For four years has had frequent attacks of what he terms "colds;" almost continuous asthma and headaches, photophobia, etc. During these colds, patient will have high fever for two or three days, delirium, intense headache and general neuralgias; these symptoms have always subsided immediately upon the discharge of quantities of pus from the nose, which usually occurred on the third day. Patient demanded relief for asthma. Operation was advised—internal—with reservation in prognosis because of presence of polyps. Internal removal of ethmoidal labyrinth was completed; since then patient has had no recurrence of asthma, but after some months the polypoid material again appeared, and with its extension the reappearance of the cerebral attacks. This condition has been relieved each time after the repeated removal of the polypoid growth, but patient has been advised to submit to the external radical operation, which will be done next Monday.

In contra-distinction to the foregoing I may cite the case of Mrs. C., 62 years of age; (photographs of the operative field herewith). This woman had a closed empyema of the frontal and ethmoidal sinuses. The first symptoms, that of swelling of the eyelid and frontal, supra-orbital tissue, appeared five months ago; she has never had any other symptoms except that of tenderness on pressure; no headache of consequence, no ocular disturbance nor reflexes, and yet upon opening (as shown in photographs), nearly the entire anterior wall had sloughed away, the exception being a small central plate very thin and freely movable. The posterior wall was necrotic, the dura bulging into the sinus cavity through a carious opening in the right central portion, an inch in diameter; the base of the crista-galli, with the exception of the posterior border, was gone and with it a portion of the perpendicular plate; the ethmoidal cells of both sides formed an unobstructed closed continuation to the abscess cavity. Why there had been no intra-dural infection is hard to explain.

Such cerebral symptoms as malaise, inability to concentrate the mind, and actual depression verging on melancholia are seen frequently in chronic cases. When cerebral symptoms arise in sinusitis, they indicate the involvement of the meninges without perforation, or, more usually, an actual perforation, in which latter case abscess of the brain or general suppurative meningitis, rapidly follows.

Douglass cites a case of external opthalmoplegia in a case of ethmoidal and frontal suppuration. Many cases of pareses and paralyses of the extra-ocular muscles are either due to extended inflammations, or pressure from pus, or to peripheral infection of the nerve filaments.

In the second class, the suppurative, we find those cases of meningitis due to either direct infection, secondary to a perforation of the sinus wall as a result of an acute or chronic necrosis, or of an anomaly in the form of a congenital dehiscence in the wall, or of a fracture through the base, all resulting in a cerebral abscess which is quickly followed by acute septic meningitis.

There is a class of these septic cases which does not occur from direct contact, but in which the infection travels along the sheaths of the communicating blood-vessels and nerves, or through the lymph-channels. Such cases occur almost invariably in the closed empyemas. The reason is obvious; the pent-up material in search of an outlet, following the path of least resistance may find its way along the sheaths of the following, as the most common routes: ophthalmic vein, artery and nerve; olfactory, optic, abducens, and superior - maxillary nerves; infra-orbital vein, artery and nerve; superior dental vein, artery and nerve; internal carotid artery and nerve; by erosion in sphenoidal sinusitis, by the spheno-palatine artery, and by the lymphatics accompanying these vessels.

Meningitis from indirect infection from the nasal accessory sinuses, almost always results from an infective thrombosis of the cavernous sinus; this also may occur as a result of traumatism, in fractures of the base which induce infective inflammations to extend from an already infected accessory sinus; also from an infective cellulitis in the orbit resulting from maxillary, ethmoidal or frontal sinusitis.

The infective thrombosis may originate from local disease in one of two ways; the inflammation may extend from contiguity of infected tissue to the cavernous sinus, or, a small vein at a more remote seat of disease may become thrombosed, which obliteration extends along the vein to the sinus.

Those cases of diffuse septic leptomeningitis resulting from cavernous sinus thrombosis are due to infection occurring through the visceral wall of the sinus.

The avenue of entrance of the specific organism of the third class, the infective cerebro-spinal meningitis, is still clouded in more or less obscurity, although there are some writers who still maintain that the sporadic cases and the epidemics are caused by other micro-organisms, particularly by the pneumococcus, and it is a generally understood fact that the diplococcus intracellularis, discovered by Weichselbaum in 1886, is the specific organism. It has also been pretty definitely settled that the atmosphere is most probably the medium of conveyance. Kischensky, in 1895, found this micro-organism in hemorrhagic foci in the lungs, and Scherer, in the same year, found them in the nasal secretion; in 1896, Heubner discovered them in fluid obtained by lumbar puncture from cases of epidemic cerebro-spinal meningitis. The specific nature of the disease has thus been established.

The essential abode of this organism in disease is in the meninges of the brain and cord. Taking these conditions into consideration step by step, and the understanding that the meningeal infection is secondary to lesions in some other part of the body, it is a plausible conclusion to accept that diseases of the accessory sinuses may open portals for the entrance of these bacteria.

Quoting from the journal of the American Medical Association, July 14, 1906: "In view of the relatively frequent occurrence of these organisms on the nasal mucosa, there is probably little doubt that invasion occurs through the cribriform plate and the ethmoidal sinuses, as Weichselbaum first suggested. After passing through the mucosa it is commonly supposed that they enter the lymphatics and perhaps the blood-stream and localize on the meningeal surface."

Quoting from the *Centralblatt für innere Medicin* in regard to the portal of infection: "The presence of the meningococcus, as of the pneumococcus, in the nasal chambers and adnexa in many persons, clears up the infection-atrium, and offers an explanation for the frequent occurrence of meningitis after cephalic trauma."

The same subject has been extensively studied by Councilman and published by him in the *Journal of the American Medical Association,* April 1, 1905.

From these investigations, we must at least accept the conclusion that the nasal accessory sinuses present a convenient avenue of entrance for any of the pathogenic micro-organisms to the meninges.

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IV. THE NASAL REFLEX.

By ARTHUR CONKLIN BRUSH, M.D.,

By the word reflex, which literally translated means to bend outward, we understand, in neurology, some definite discharge from a motor centre in response to an impulse conveyed to it from some part of the body.

Such reflexes are divided into the superficial and the deep. As an example of the former, we may take the contractions which occur in the abdominal or the pectoral muscles, when the skin about the abdomen or the breast is irritated, being an involuntary effort on the part of the patient to protect certain delicate structures. By the deep reflexes, we mean the sudden contraction of a muscle which occurs, as in the quadriceps femoris when the patella tendon is suddenly struck, with the leg in a flexed position. Here, again, the effect produced is the same, or an involuntary effort to prevent harm by the sudden elongation of the muscle.

When we come to the consideration of the nasal reflexes, we find ourselves confronted by a much more complex problem than in the spinal reflexes where each part has a definite sensory nerve-supply whose irritation results in a certain motor reaction. The nerve supply of the nose is derived from a number of different nerves, the olfactory, trigeminal, glossopharyngeal and pneumogastric; with the exception of the olfactory, these nerves are not connected with one nuclei as are the spinal nerves, but, by anastomosis, are composed of fibres derived from different nuclei. Nor is the origin of these fibres of the cranial nerves as yet well settled; take, for example, the facial which, I think, has come to be regarded as unquestionably a pure motor nerve, yet Hunt, in a recent article on disease of the geniculate ganglion, has shown that it contains sensory fibres. Besides the cranial nerve supply we find that the important vascular structures of the nose are also under the control of the sympathetic system, and that the vaso-constructors come from the cerebral sympathetic, and the vaso-dilators from the spinal.

Again, we find it impossible to separate the results of nasal irritation from irritations of the pharynx. It will be seen, therefore, that nasal irritation may excite some or all of many different nerve-centers, and that no definite reaction or reflex can be evoked by any given stimulus.

In the most common reflex from the nasal cavity, the effort of nature to remove irritation by the act of sneezing, we find a most complex reaction consisting of a deep inspiration followed by a tonic spasm of the respiratory muscles succeeded by a violent expulsive effort, and also by a vascular dilatation of the vessels of the nose and of the skin, with lacrimation. In this reflex we find a reaction not only from all the nerves of sensation which supply the nose, but also from motor centers, as the spinal centers of the respiratory muscles, which are not irritated through these nerves. We also find that similar irritations do not always produce this reaction, but give rise to others, as cough or attacks of spasmodic asthma.

It can not be said, therefore, that there is any true nasal reflex, if we mean a definite reaction of certain motor centers in response to irritations conveyed to them by the sensory nerves associated with them.

WHAT THE PATHOLOGIST CAN REALLY DO NOWADAYS FOR THE PRACTITIONER.

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THE subject I have chosen to-night suggested itself to me several months ago. Returning from a medical meeting where the "nitrogen partition" in the toxaemias of pregnancy had been discussed with enthusiasm and acumen by certain of the professional wise men, I fell in with a cynical friend who told me it was all nonsense; warming to his subject he added that considering the volume of books and papers written on clinical pathology in recent years, the expenditure of time and waste of brain tissue, the results were shamefully inadequate. "You report a positive Widal," he continued, "only when the patient is convalescing from his typhoid; 20 grains of quinine is as easy a way of diagnosing malaria as a blood examination; and the man who can't recognize pulmonary tuberculosis without a sputum stain ought not to be licensed to practice."

All of us can see, of course, the weakness of such an extreme statement; but a more or less reactionary attitude of mind to-day in respect to the real value of clinical pathology is not nearly so uncommon as might be supposed. Nor is it entirely without justification. The trouble is that in the excessive specialization of the times there has arisen a double deficiency in medical attainments, namely, the pathologist knows too little of practice, and the practitioner too little of the working limitations of pathology.

Let us define clinical pathology, roughly, as the application of the scientific data of morbid anatomy, of parasitology in its widest sense, and of physiological chemistry, to the bedside diagnosis of disease.

Inasmuch as none of these sciences is exact and complete, and organic chemistry, especially, is hardly out of its scientific swaddling-clothes, the candid confession follows that their usefulness is yet limited; that while they can do something, it is equally positive that certain other things they cannot do. Some things they can positively state as proved facts, other things only as reasonable probabilities—and this admission will, I hope, clear the air for what follows.

By way of further introduction, I should like to discuss a little more

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*Read before the Brooklyn Pathological Society, March 14th, 1907.

fully that twofold deficiency in current medical attainment that I have just mentioned.

The man who specializes in clinical pathology should not merely be allowed, but encouraged and urged to care, personally, besides his regular work, for as many patients as he has time for. Otherwise his specialty needlessly stoops his shoulders and narrows his intellectual vision; sets him—in Carlyle's droll words—to "nosing in every cranny and dog-hole" of science, instead of keeping on the main road. And the practitioner both of medicine and surgery should from time to time go out of his way to visit the laboratories and talk to the laboratory men, and take special courses for himself in clinical pathology—not only in order to keep abreast of the really useful things the pathologist can do for him, but to familiarize himself with the various ways—not always obvious—in which specimens must be prepared or preserved beforehand, if the microscope or the test-tube is to be of any real value.

On this last point I may be permitted perhaps to give a few illustrative examples.

For one thing, there is no reason why the physician should not keep at his office a few clean pint, and half-pint, and 4-ounce bottles, with a little thymol powder in the bottom for the use of patients who are told to bring single specimens or larger amounts of urine for analysis. Ten cents worth of thymol will last for a year. Ammoniacal fermentations, the disintegration of casts, and decomposition of albumin will be done away with, and the specimen may be expressed to distant laboratories, if need be, without the least damage.

It is remarkable how many specimens of spoiled urine in dirty bottles come into the laboratory with the request, "Please make a culture for Gonococus." If bacterial cultures are required, only sterile urine can be used. Again, most physicians know in what kind of containers sputum ought to be collected, but too many of them forget that reports on sputum that is over 24 hours old are unreliable, and that bloody sputum is distinctly bacteriolytic.

More care in the preliminary handling of tissues would be a great help. A doctor sent to our laboratory only last week a cervix uteri in alcohol. He sent the specimen for immediate diagnosis by a frozen section. And this could have been reported on in half an hour if he had used formalin instead; as it was, half a day was required to wash out the alcohol—which cannot be frozen by the freezing microtome. Another surgeon recently wanted to know whether a small spinal tumor he sent was a glioma or a sarcoma. He had neglected to inform himself how glia-fibres can be stained, however, and had let the tissue lie all night on his office table and then put it in formalin, thus absolutely "blocking the game"; for glia-fibres decompose within six hours after death, and can be safely fixed for quick diagnosis in Zenker's fluid only. The surgeon almost always forgets, too, that for staining tubercle bacilli in tissues, the fresh specimen should be dropped at once into 50 per cent alcohol. In the shape of whiskey or brandy this re-agent is to be obtained everywhere, and a negative report from the pathologist will then have some value.

Moreover tissues must be reasonably fresh. One doctor sent to a medical friend of mine last summer a bit of charred and blackened skin with the message, "Dear Doctor, This specimen was removed a week ago from a growth on a patient's arm. It was accidentally thrown in the fire by my office-maid yesterday, but I rescued it from the ashes and hope you can tell me whether it is a fibroma or sarcoma."

Sometimes the common judgment of mankind will make the pathologist's dictum quite needless. A medical gentleman in central Pennsylvania posted me recently a specimen in alcohol from the stool of a middle-aged woman suffering from constipation. "I fear cancer. I would like you to diagnose it," he wrote. It was evidently a piece of tough beefsteak, and the microscope showed striated muscle in abundance.

There is no more time to multiply instances. These are quite enough to justify the general statement that the practitioner should inform himself, as he easily can by application beforehand to the pathologist, by reading any standard text book, or best of all by a little first-hand experience in the laboratory, just what he should do beforehand to make the services of the pathologist really worth the money the patient is paying.

One final service the pathologist may reasonably require of the practitioner, namely, a brief note of the clinical details. It does not take five minutes to write down in an orderly way the name, age, and address of the patient, the way in which the specimen was gotten, the part of the body it came from, and a few notes on the history and clinical diagnosis, and what is wanted. I have seen half a dozen unidentified specimens at once of urine, serous effusion, pus, ovarian cyst fluid, gastric contents, and similar things, all sent in by different doctors without a single note except that "Dr. A. B. wishes an examination as quickly as possible." Physicians having much laboratory work on hand might have a slip printed at little cost with blanks for these data, and solve the problem at once.

Let us now take up our main topic. A rigid classification of such a subject is difficult, and I shall not attempt it; neither can I hope to be exhaustive; neither would I be thought of as adopting an oracular attitude and trumpeting from an eminence, like the Swiss shepherd from his mountain top. I beg to be considered only as one of yourselves—a student—often a somewhat perplexed and bewildered student—of the large and expanding field covered by the modern literature of clinical diagnosis.

I shall speak briefly of blood examinations, of urinary analyses, of gastric contents, and finally of two or three of the current problems of tissue diagnosis.

As to the blood, we have long ago found out that the essential anæmias and the leukemias can be definitely diagnosed by a blood examination, and in no other way. The same is true of filarial disease, and is likely true of "sleeping sickness." Relapsing fever is an old story, and malaria can be almost infallibly diagnosed in the temperate zone by a blood examination, if the blood be taken during the existence of fever, and quinine has not recently been administered, either by the medical attendant or in some patented "malaria cure."

As regards neutrophil leucocytosis, its prime indication is of course infection with one of the pus-germs. There has been much talk of recent years as to what really constitutes leucocytosis. Some writers claimed as recently as two years ago that the differential excess of polymorphs over 80 per cent was more important than an absolute increase of white cells. Opinion is now settling to the view that while, in rare instances, this may be true, as a rule the total count as well must be increased—at least up to 12,000—to constitute a condition of diagnostic value.

Let us freely admit, however, that an increased white-cell count is not always more infallible as an indication of confined pus than are the ordinary clinical signs. Acute gastro-enteritis, acute pharyngitis, and pus-germ inflammations of freely draining surfaces anywhere, are often accompanied by a leucocytosis of 20,000 to 30,000. Moreover, closely confined and encapsulated pus-masses often coexist with a normal count; and we must admit that even general septic inflection in certain patients runs a favorable course without leucocytosis. The condition therefore must be interpreted with the same allowance of brains and common sense that the practitioner gives to his other symptoms and signs.

Neutrophil leucocytosis has also a certain prognostic value. Its presence is of favorable import in lobar pneumonia; its absence in various evidently septic conditions like puerperal fever, pneumococcus infection, and mastoiditis is a bad sign. To both rules, however there are exceptions.

Elaborate differential counts are of limited usefulness. Five minutes' examination of a well-stained film by a trained eye will usually suffice, except in pernicious anæmias, and leukæmias; here the work to be done is serious and helpful and takes about two hours.

An immense amount of work has been done on differential counts in the various leukopenias. In suspected typhoid we now have elaborate percentage relations for the 1st, 2nd, 3rd, and 4th weeks. If not actually fallacious, such work will remain of academic value. In acute miliary tuberculosis it has been recently claimed that the presence of over 90 per cent of polymorphs in a low total count is almost pathognomonic; the statement requires confirmation.

A useful fact in studying differential counts is the remarkable eosinophilia (25 to 60 per cent.) in acute trichiniasis. This condition, however, to a less marked degree has been observed in cases of ordinary intestinal parasitism, in Hodgkin's disease, in asthma and in chronic eczema. It is not therefore an infallible guide.

In respect to differential counts, generally, I think the physician should give the matter due consideration and satisfy himself that he can learn something definite from it before he calls for one; the count is laborious and exhausting, and if the full 1000 or even 600 leucocytes are counted, the laboratory man has done a good day's work who gets two well done. This remark particularly applies to ward work in hospitals. The visiting physician in one New York Hospital I know of had a passion for them one season, and used to ask for a dozen a day.

After years of experiment the laboratory estimation of haemoglobin is still unsatisfactory. The instruments of Gowers, of von Fleischl, of Jolly, of Oliver and the enticingly simple little filter-paper of Tallqvist, still leave much to the judgment, the personal equation, of the pathologist. Nearly all of the so-called instruments of precision register too high, and if much guessing be required, one might as well take a drop of fresh blood on his finger nail, as John Hunter was wont to do, and guess outright.

As to the blood plaques, it seems really a pity that, in view of the huge library now extant on this subject and the numbers and numbers of counts in all kinds of disease that have been made and published, they still have no reliable clinical meaning.

Turning from the morphology of the blood to its chemistry and bacteriology we must discriminate sharply between what are the useful and what are the ornamental facts.

The clump reaction in typhoid seems to hold its own as present in 85 to 95 per cent of all cases, at some time during the course of the disease, and usually not too late to be of considerable help in clearing up doubtful continued fevers.

Cultures from the blood in typhoid, in septic infection, and in malignant endocarditis, are sometimes demonstrative but are of limited scope; They can be made only by a trained bacteriologist working in a good laboratory. Such a man is hard to get get except in the large cities. Then, too, cultures are often contaminated, often negative, and even when positive the identification of the growths may take a week or ten days.

Not to be too pessimistic, however, it should be admitted that much exhaustive and intelligent work has few years. We may hope for something more practical in the future.

Cryoscopy of the blood is on trial, but we don't hear as much about it in New York as we did two years ago. In giving the method a candid consideration, one fears that the elements entering into the test are too various and variable for fallacy to be easily excluded, and that possibly "the game is not worth the candle."

On "gastric contents" I shall have

to confess myself a little reactionary. The older ones in this assembly have seen many enthusiasms come and go in this field, and we have grown somewhat skeptical of the value of "total acidity," "free hydrochloric" determinations, and the other shibboleths which were wont to attract us in our younger days. Many of the facts brought forward in former years were based on insufficient observation and inadequate knowledge. So far as my own experience is concerned, the absence of free HCL from the stomach after a test meal is a very common thing indeed with nervous people and has nothing whatever to do with cancer; and the Boas-Oppler bacillus, once supposed to be pathognomonic of the same disease, I have found years ago in the stomach-contents of dyspeptic women who are now well and strong. I suppose we should admit that, inasmuch as "honest confession is good for the soul," the exact chemistry of gastric and intestinal digestion is still far beyond us, and that many of our diagnostic tests are based upon insufficient data.

Even in the matter of tissues recovered from stomach washings, one must be conservative. I remember, as doubtless you do in your own case, the pleasing impression made on me as a medical student years ago by the drawing of a bit of cancer recovered from stomach washings in a familiar text-book on "Diseases of the Stomach."

Those were, however, my "salad days, when I was green in judgment." Looking at the same picture to-day, I am constrained to doubt whether any histologist could reasonably say that the specimen ever came from the stomach at all; certainly it would stand for half-a-dozen other things as well as for cancer.

As a rule, tissues washed from the stomach are necrotic, semi-digested, superficial and usually so small, besides, that it is time wasted to examine them; only once in the last ten years have I seen a specimen gotten in this way that I was willing to call a carcinoma.

Upon urinary analysis I shall tarry but a moment. Albumin has become a matter of 100 pages in the text-books; practically it will be found that albumin which does not appear on boiling, or on the cold-contact test with nitric acid, has no clinical meaning. The morphology of the sediment is the only way of locating the source of an albuminuria; most reasonable doubts can be thus cleared up, but a microscope man who tells you he can distinguish bladder, urethral, prostatic, pelvic and renal epithelium "with ease in all cases," is not a man to put your trust in.

In suspected renal incompetence, if it be not practicable to get a careful chemical analysis of the patient's urine (including the albumin groups, urea-nitrogen, uric-acid-nitrogen, creatinin-nitrogen, ammonia-nitrogen, phosphates and chlorides), the specific gravity and twenty-four-hours' quantity will be almost as helpful, both in treatment and prognosis.

In the matter of the chemistry of the urine I should like to say just a word in the matter of uric acid. "Uric Acid" is a phrase that patients can easily remember; they go home with an increased sense of importance when the medical adviser has suggested it to them as a probable diagnosis. Wealthy ladies returning from the continental "cures" abroad know all about it, and have elaborate anti-uric-acid dietaries in their trunks written out for them in French or German by the medical attendant. The dentists are "upto" the game also, and there is no popular nor enlightened dentist to-day who does not know that pyorrhea alveolaris is caused by a "uric acid diathesis." Some physiological chemists have enlarged the field of view by calling into account the purin bodies *in toto,* and devising pleasing methods for their quantitative estimate.

The best informed physiological chemists, I believe, will admit that the uric acid problem is hardly half solved, and in the present state of the question we shall be leading both ourselves and our patients into devious paths by trusting to the highly provisional conclusions so far worked out.

The nitrogen-partition in urine is a curious and interesting and immensely difficult question which must be studied for years to come before it will offer safe clinical deductions.

I come finally to consider certain points of tissue diagnosis. Here the trained pathologist is often on firm and familiar ground; he feels sure of himself in many cases and his opinion carries conviction. In other cases, unfortunately, his diagnosis, not at all to his personal discredit, can be, in the nature of the case, only one of the elements in a problematic clinical question, and why this is so we can best explain by taking up a few special tissues.

The uterus, with tubes and ovaries, will serve very well to begin with. The majority of tumors of the ovaries can be easily and certainly identified; the macroscopic section of a fibroid is so characteristic that it is difficult to think of anything to confound it with. I have one surgeon acquaintance who has a chronic obsession on the subject of "sarcomatous degeneration" of his fibroids. He would like me to make exhaustive serial sections of the bushels he sends me. In handling myo fibromata almost daily, however, for these ten years, I have never yet seen a single case of "sarcomatous degeneration" of such tumors. A spindle-celled sarcoma, histologically similar, sometimes fills the pelvis and makes numerous dense metastatic nodules in the peritonæum, but this is malignant from the onset. I do not even think that the foreign statistics purporting to prove the increased incidence of cancer in the fibroid uterus will be borne out by American experience. The chorionic villi in the ruptured tube of extra-uterine pregnancy can be generally identified with positiveness, and in suspected abortion, fetal and decidual remnants in curetting from the uterine cavity usually offer no difficulties even a month or six weeks after the accident.

As regards malignant growths of the uterus, the cauliflower excrescence of advanced cervical cancer is familiar, and hardly requires a microscopic examination; but the diagnosis of early cancer of the cervix and of the fundus is unfortunately one of the most baffling problems in pathology.

The patient is 40 to 45 years of age, perhaps has a rather complicated uterine history, has recently lost weight, and bleeds a good deal at the right and the wrong times. The surgeon sends you an excised bit of tissue the size of a grain of maize; you are expected to find out for yourself the original situation and position of this piece, and get the sections cut perpendicularly to the original epithelial plane, as it must be cut to give any information at all. When stained and mounted you look it over carefully, and find some cystic cervical glands, some "implantation" growths due to rough use of the volsellum in former years, some thickened vessels some old lacerations around which the the epithelium is thick and irregular, but to your disappointmeut you find that the bit was removed too superficially to admit of a straight verdict either for or against malignancy.

The patient, meanwhile, if really cancerous, has run a certain risk of metastasis from even this slight operation, and nothing has been gained. Again, the piece excised was large enough, "but was taken from the wrong part of the portio vaginalis, and the cancer starting in another zone was thus missed. Or the primary site of the cancer was the internal os" unfortunately, and the entire external os was innocent-looking.

Again, in suspected malignant disease of the fundus uteri, the first resource is curetting. But a curious and unfortunate fact about the uterine mucosa is that it has properly no basement membrane at all, and the deeper gland-tubules often bear down quite normally a long way into the muscular coat, so that energetic scraping with a sharp curette will bring away glands buried in muscle from almost any uterus, and only perplexity and confusion result. In later years

I have found it safest to look for atypical gland-masses, with epithelium more luxuriant and irregular than the membrane around, and for gland-masses buried in densely infiltrated new connective tissue which is apt to accompany adeno-carcinoma of the fundus. If I find these, and, in addition the freshly excised tissue is friable as well as hard, I can usually recommend a hysterectomy with a clear conscience, after explaining candidly the difficulties of the diagnosis.

It must be admitted, also, that in certain cases of obstinate bleeding at and after the menopause, neither hypertrophic endometritis, mucous polyps, submucous fibroids nor malignant diseases are present. Noting that the vessels of the uterine muscle thicken relatively early in life, it has occurred to me that simple arteriosclerosis has something to do with this type of metrorrhagia; at all events my reports on other conditions have been negative. Not infrequently such wombs are removed in despair by the surgeon because he can not permanently relieve the hemorrhage. When they are sectioned and thoroughly examined with the microscope from end to end, nothing can finally be found except sclerosis.

The pathology of the lymph nodes discloses another field of comparatively easy and of extraordinary difficult character. Every undergraduate knows the looks of a tubercular lymph node; the giant-cells, caseous matter, and cell-infiltrate are usually typical. Cancerous nodes, when the cell-matter has broken down and become cheesy, are microscopically similar, but with the microscope one can usually find at least some minute bits of original growth in the margins of the sections. Syphilitic nodes are usually identifiable clinically. Suppurative inflammations of the nodes (inguinal bubo, presence of polymorphonuclear leucocytes in the sections.

The more careful cytological studies of recent years (Dorothy Reed, Longcope) have made it quite possible to recognize the later changes of Hodgkin's disease; the destruction of the germ-centers, the presence among the smaller mononuclear cells of larger round and oval cells with two to five nuclei; and a sprinkling of eosinophils make a characteristic picture.

The general enlargement of lymph-nodes in lymphatic leukæmia can of course be explained by a blood examination. There are also certain small round-celled sarcomas of the lymph-nodes which can be identified because the process, while starting in a single gland or small group of glands, quickly erodes their capsules and continuits course in the surrounding tissues.

Here unfortunately our pathological knowledge ends, and with it of necessity our diagnostic ability also.

It is mortifying to admit that there are a number of lymphatic tumors, some of them multiple, and attaining even the size of an egg, which show nothing on microscopic section except a hyperplasia of the normal lymphoid elements.

Over 20 years ago Billroth wrote: "In lymph-nodes the distinction between inflammatory swelling and homeoplastic new growth is quite impossible by the anatomical structure alone; and clinical observations can only presume a symptomatic chronic inflammation, when a primary focus of infection is somewhere near."

Such gland growths do not invade surrounding tissues and are often confined to a single region—axillary or cervical, perhaps,—of the body; they may or may not recur on excision.—No useful or fruitful effort has been made to explain them since the pioneer work of the author just quoted. They represent, possibly, several different morbid processes, but the pathologist knows no more of their etiology or prognosis after he has made the sections than before. Many pathologists are no longer familiar with the generic name "Billroth's neck," and the cases, which are not so rare, usually pass through the hospitals under some provisional or mistaken diagnosis.

In conclusion of this long, fragmentary, and ill-arranged discourse, I might sum up my points somewhat as follows: Medical diagnosis is a complicated and difficult problem. Until the medical millenium arrives and every disease appears with its own pathognomonic tag, successful solution of the problem will generally depend upon the intelligent balancing of clinical probabilities. These probabilities will vary in number and in value, and the highest faculty of the trained medical man, his judgment, will always be the supreme factor.

For many years to come clinical pathology, while it will offer aid—often valuable, sometimes invaluable—in the work, will not contrive to bring medical diagnosis out of the problematical and into the mathematical sphere.

What the pathologist does to-day, what he hopes still better to do in the future, is—with candid acknowledgement of his limitations—to offer to the practitioner a larger number of helpful data for the ultimate conclusion than could be had before.

COMPARATIVE VALUE OF CLINICAL AND PATHOLOGICAL DIAGNOSIS.*

By EDWARD E. CORNWALL, M.D.,

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A TENDENCY has been observed among physicians of the present day to pay less attention than formerly to the clinical evidences of disease and to rely too much on pathological reports, and in general to be less observant than were the physicians of a generation or two ago, who lived in what we are accustomed to consider the pre-scientific age of medicine. This tendency is perhaps most pronounced among the recent graduates of our medical schools, whose medical education has been conducted largely in the light of the laboratory, and who consequently have an exaggerated idea of the importance of the laboratory in diagnosis; but it is not confined to them.

The reasons for this tendency are probably found in the ease and quickness with which pathological diagnosis can be made and in the precision and scientific completeness of its methods. It is easier to send a specimen or culture to the laboratory and get a report in a few hours or a day than it is to make a painstaking and thorough investigation of all the possibly significant points in the surroundings, history, symptoms and physical signs of a patient, and to correct the judgment made on these points by a close and critical observation of the course of his disease and the effects of treatment. And the diagnostic methods of the laboratory, which take into account only one thing, the specimen examined, and from the pathological findings make positive deductions, are, as far as they go, logically conclusive, and in that respect contrast favorably with the complicated, often slow and laborious, and much less positive inductions from bedside observation.

These features of laboratory diagnosis may explain, though they do not justify, the tendency referred to. Important as are the evidences of disease derived from the laboratory, they are vastly less important viewed in relation to diagnosis as a whole than those secured by bedside observation. In the great majority of diseases we are compelled to rely altogether on clinical diagnosis. Those for whose identification we possess absolute and exclusive laboratory tests are extremely few. In most of the diseases in which we employ laboratory diagnosis the pathological evidences even when positive are often insufficient to establish the diagnosis without clinical support, and when negative are commonly of little significance. This limitation to the value of laboratory diagnosis compels good diagnosticians, when they find a conflict between the pathological and clinical evidences, usually to favor the clinical. The late Dr. Fowler is reported to have said on one occasion that he agreed with the pathologist when the pathologist agreed with him. The great variety of the clinical methods, their universal application, the characteristic clinical pictures of disease which can be pieced together from many separate observations, the cumulative value of continued observations on the course of disease, and the effects of treatment, and the possibility of making a diagnosis by exclusion, are advantages which greatly outweigh the facility, rapidity and limited positiveness of the methods of the laboratory.

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*Read before the Medical Society of the County of Kings, April 16, 1907.

Let us compare the relative value of the two methods of diagnosis in a few of the diseases in which both are commonly used.

In pulmonary tuberculosis an early diagnosis is particularly desirable in view of treatment, and in a large proportion of cases it is possible to make such a diagnosis by purely clinical methods. It is eminently desirable to have this diagnosis confirmed by the discovery of the tubercular bacilli in the sputum, but such a confirmation fails in most early cases and in many later ones. If in every case in which an early diagnosis can be made clinically, the diagnosis should be held up and the treatment which should follow it deferred until the bacilli are found in the sputum, lives would be lost.

For typhoid fever we have a laboratory test of considerable value, the Widal reaction, but it can seldom be obtained before the second week of the disease, by which time it is usually possible to make a positive clinical diagnosis, and it sometimes fails to appear before the end of the febrile period or the relapse, and in about three per cent. of the cases it fails altogether. Osler says, "a perfectly characteristic case with hemorrhages, rose spots, etc., may give no reaction throughout." Krauss found that a complicating pneumonia caused the reaction to disappear. Valuable as this sign is, it cannot replace clinical diagnosis in typhoid fever. It must remain only a corroborative sign.

One of the most important of the diagnostic tests furnished by the laboratory is the examination of cultures from the throat for the Loeffler bacillus. This is of such great practical value that the health departments of most large cities employ it as a routine procedure, and on the finding of the bacillus regularly base a diagnosis of diphtheria. But this test is not infallible, and, as Sahli says, if a physician relies absolutely on the bacteriological examination to make his diagnosis he will sometimes be deceived. He will find cases which run a course of undoubted diphtheria in which the germs cannot be found, and others which are not diphtheria at all which give a positive culture. According to Dr. J. N. Study (*N. Y. Med. Rec.,* May 12, 1906), the bacillus can be found in the throats of two per cent. of all healthy children. I think there are few of us who have not seen cases reported by the laboratory as true diphtheria which were nothing more than follicular tonsillitis, cases in which the germs were merely bystanders and not active participants in the disease.

Perhaps in no disease is the laboratory depended on so universally for a diagnosis as in chronic nephritis, and in the latter stages of this disease, when treatment can be only palliative at best, the examination of the urine is usually conclusive. In the early stage, however, when the treatment can be of most avail, the results of urinary examination are usually negative. Foulkrod says, "experience in examining urine of all types leads us to believe that the results of our examination are a very poor indication of the pathological changes existing in the substance of the kidneys." But frequently in the early stage of nephritis it is possible to make a diagnosis by purely clinical methods. If we find habitual overaction of the heart with continued high blood pressure, for which no other cause can be found, especially in connection with a previous history or constitutional conditions etiologically suggestive of chronic nephritis, we can sometimes make a diagnosis before any symptoms appear in the urine. An example of such an early diagnosis is seen in the following case: A lady of thirty-five consulted me for headaches which had troubled her for about a year past; they were severe and continuous at the times of her monthly flow, but slight and occasional between the periods. She complained of no other symptoms, and her previous history was remarkably free from morbid incidents. She gave a family history of chronic rheumatism, and for a number of years had been a habitual though moderate indulger in alcoholics, chiefly beer. Physical examination revealed nothing abnormal except marked accentuation of the aortic second sound and a systolic blood pressure of 200 mm. Examination of her urine was negative. Regulation of her diet and habits and administration of small doses of bromides were followed by cessation of the headaches, but the blood pressure remained high, not being found at any time below 180 mm. Repeated examinations of her urine were made with negative results, but finally a trace of albumin and a few hyaline and granular casts were discovered. In this case a diagnosis of chronic nephritis in an early stage was made on the clinical evidences, and the repeated examinations of the urine were made with the expectation of corroborating the diagnosis, not of controverting it. If in this case the negative urinary report first received had been taken as evidence excluding the diagnosis of nephritis, the patient would have been allowed to depart from observation, and a favorable opportunity for treatment would have been lost.

In the case of malignant tumors an early diagnosis is of such enormous importance in view of operative treatment, that the aid of the pathologist is frequently invoked. The reports from the laboratory in these cases are of very great diagnostic value, but they cannot be relied on absolutely. We cannot neglect clinical diagnosis even in these cases and trust altogether to the pathologist. I think most of us have known instances where the pathologist gave a positive verdict of cancer which was refuted by the fact that the patient refused operation and got well, and other instances where the growth was declared benign by the pathologist, but the patient went on and died of it. I remember a woman who had a small tumor of the gum, which was removed and sent for examination to one of our best pathologists. He pronounced it a sarcoma of virulent type, and recommended an immediate and extensive operation as the only possible means of saving the patient's life. She refused operation, and now, seven years later, is in her usual health. A surgeon of repute recently told me of an instance the reverse of this. In operating for appendicitis he found a tumor in the abdominal cavity which his clinical judgment pronounced malignant, and he would have removed it if he had not been deterred by the advice of others present at the operation. He did take out a slice for pathological examination, and received from the laboratory a report that the tumor was benign. Six months later the patient died of cancer.

Instances like the foregoing could be multiplied, but it is not necessary to do it to show that we should hold fast to clinical observation as our chief reliance in diagnosis. While we should take advantage of all the diagnostic aids which the laboratory can give us, we should not permit their use to make us less thorough and persistent in our investigation of the patient's surroundings, history and symptoms, and in our examination of his body, or less skilful in the use of the various instruments devised to aid us in this examination. And especially we should be careful not to allow reliance on laboratory aids to weaken our power of independent clinical judgment, our diagnostic self-reliance.

1239 Pacific Street.

TUBERCULOSIS OF THE CERVICAL LYMPH GLANDS.

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BROOKLYN-NEW YORK.

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I HAVE ventured to present for your consideration a topic with which you are all familiar, and yet, for that very reason, I trust that its consideration at this time will prove both interesting and instructive. For although the unusual and the peculiar appeal to the imagination and stimulate research, nevertheless, it remains true for most of us that it is the common which engages our attention, tests our skill, and in the long run, demands the greatest resourcefulness in the therapeutic art. Furthermore, the fact that a disease is common does not signify that it is perfectly understood; and how often it happens that some newly discovered fact changes our whole conception of a disease-process, and compels a complete revision of our therapeutic practice. Such overturnings of ideas have been common during the past century; they are still occurring at the present time, and tuberculosis is no exception to the rule.

Etiology.

Prior to the discovery of the etiological relationship of bacteria to disease, it was believed that diatheses and humors explained all morbid conditions. Within the last twenty-five years we have discarded diatheses and humors, and have attempted to explain nearly every disease on the basis of bacterial infection. We have spelled bacteria with a big "B," and patient with a little "p," forgetting that the growth of bacteria in the individual is largely conditioned on the resistant power of the particular tissue attacked, and on the resistant power of the organism as a whole. Both of these depend to a considerable extent upon the state of health of the individual exposed to the infection.

This relation of the general health to the local lesion is of supreme importance in all forms of tubercular infection, but unfortunately, it is all too often forgotten and neglected. And on the other hand, the relation of the local lesion to the general health is often of the greatest consequence.

If we inquire the cause of tubercular glands of the neck, the answer comes readily: infection with tubercle bacilli, causing first proliferation and then cheesy degeneration of the glandular tissue; but this answer is incomplete and unsatisfying. What is the source of infection? and if all are exposed to the same influences, why do not all become infected? In an interesting article recently published, Bovaird (1) discusses the subject, "The Portals of Entry and Sources of Infection in the Tuberculoses of Children." His fundamental propositions, quoted from Cornet in Nothnagel's Encyclopedia, are of especial importance in our study. First, "Tubercle bacilli which have invaded the organism regularly develop at the site of invasion, or in the next set of lymph glands." Second, "The further dissemination is gradual, so that the pathological findings ordinarily furnish a clue to the site of invasion." This being true, we must look to the areas drained by the cervical lymph glands as being the portals of entry from which the glands become secondarily involved; the exception to this would be cases of general glandular enlargement, arising from some other point of infection. But in the ordinary cases of tubercular cervical adenitis, it is the nose, throat, and scalp which first transmit the infection to the glands.

Leaving out of account tubercular infection derived through the placenta, which method is exceedingly rare, there are but three possible modes of infection: inoculation, ingestion, and inhalation.

Inoculation undoubtedly occurs, and it is possible for wounds, abrasions, neglected eczemas, etc., about the head and neck, to become infected with the tubercle bacilli, and from thence the infection be carried to the neighboring lymph nodes; but granting its occurrence, this mode of infection is comparatively rare, and in the vast majority of cases the primary infection is located in the upper alimentary or respiratory tract.

After a lengthy consideration of "The Significance of Tubercular Deposits in the Tonsils," and a review of several thousand cases, Wood (2) reaches the following conclusions: "The tonsillar tissue of the throat, because of its peculiar anatomic construction, and its topographical relations, is more liable to become infected by tuberculosis than any other part of the upper respiratory tract. In about 70 per cent. of cases of pulmonary tuberculosis, and in nearly every case of advanced phthisis, the faucial tonsils become inoculated. In about 5 per cent. of cases of hypertrophic pharyngeal tonsils, some form of tuberculosis of the tonsil is likewise present without other foci being discoverable. Primary infection of the faucial tonsil is a rarer condition. Tuberculous adenitis in the cervical lymphatics develops in the majority of cases from infection originating sometimes in the faucial tonsils, but more frequently in the pharyngeal tonsil. The tubercle bacilli are probably unable to pass through the tonsils, without having first overcome the vital resistance of the tonsillar tissue."

In a series of 232 cases in which the tonsil was removed by Robertson (10), 8 per cent. showed tuberculous change:

That the tubercle bacilli may pass from the tonsils to the glands was proved by Dmoschowski (3) years ago, when he demonstrated the presence of tubercle bacilli in the lymphatics connecting the tonsils with the neighboring lymphatic glands.

The stages in the infection are well illustrated by the following cases reported in the recent literature: Means (4) cites the case of a doctor, suffering with fever, cough, nightsweats, and loss of weight and strength, with no demonstrable lesion in the body except an ulcerating tubercular pharyngeal tonsil. Barstow (5) reports a similar case. Both were cured by operation. Here, although the local lesion was unusually well marked, and the patients were suffering from a tuberculous toxæmia, no appreciable infection of the neighboring glands had occurred. Ivens (6) reports a case of primary tuberculosis of the pharyngeal tonsil associated with tubercular cervical glands. Here also, recovery followed operation. Koplik (7) reports three cases of what appears to have been primary involvement of the tonsils, followed by involvement of the cervical glands. Two died of acute miliary tuberculosis, one without operation, and one after operation; the third recovered after operation. In most cases the sequence is not so well marked. The tonsillar infction may be slight and pass unnoticed, or it may have undergone spontaneous healing prior to the date of examination. Furthermore, when the tonsillar tissues are damaged by the presence of some other form of infection, it appears possible for the tubercle bacilli to pass through into the neighboring lymphatics and be carried to the glands, without leaving any trace of infection in the tonsils themselves.

Various observers have discovered the presence of tubercle bacilli on the mucous membranes of the nose and pharynx, and in the crypts of the lymph follicles. It is a fact of common experience that inflammations affecting these structures cause more rapid and more pronounced reaction in the neighboring glands than inflammations of the faucial tonsils, and it seems not unlikely that this lymphoid tissue may form one of the portals of infection; Jacob believes that it is the principal one.

The question as to whether this infection is air-borne or is caused by infected food is of great interest from the hygienic standpoint; but unfortunately there are no statistics on this point, and it can only be determined by analogy from the statistics of pulmonary and abdominal tuberculosis.

Bovaird (1) in the article already quoted, notes that in ninety per cent. of the cases of tuberculosis in children, where the primary focus is discoverable it is found in the bronchial lymph nodes or lungs, and it is the evidence of an inhalation tuberculosis. On the contrary, primary tuberculosis of the intestines or of the abdominal lymph nodes in children in America is comparatively rare; on an average perhaps 3 per cent. Practically the same result was found by Morf (24) in the study of 232 consecutive autopsies held at the Rush Medical College. Tubercular glands were searched for with the following results: 86 bodies or 37 per cent. were tubercular; and 146 bodies or 63 per cent. were non-tubercular. Of the 86 tuberculous cases, only 9 cases or 10.5 per cent. showed involvement of the abdominal lymphatics. Of 6628 persons dying of tuberculosis in two-fifths of the United States in the year 1900, aged under 15 years, but 480 deaths or less than 8 per cent are reported to have been caused by abdominal tuberculosis (8).

Located in the naso-pharynx, the tonsils and neighboring lymphoid tissue may be regarded as belonging to either the respiratory or to the digestive system, and are subject to infection either through the air or by the food. But when we consider the enormous disparity in number of cases of primary tuberculosis of the lungs and their lymph nodes, and of the intestines and their lymph nodes, the conclusion is irresistible that the inspired air is usually the source of infection both of the lungs and of the lymphoid tissue in the naso-pharynx; for if the infection was caused by food, the mesenteric and not the bronchial glands would be the ones most usually affected. To this, one objection may be raised; namely, the possibility of primary tuberculosis of the lungs and their lymph nodes being caused by direct absorption from the intestines through the thoracic duct, without the mesenteric glands becoming involved. At one time this was believed to be common, but the latest researches of Cornet and others have shown this view to be untenable. In 64 cases of primary abdominal tuberculosis reported by Kingsford (9), the mesenteric glands were caseous in 62; whereas but 18 showed any involvement of the thoracic glands. If the bronchial glands become infected directly from the intestine in the milder cases where the virulence of the bacilli is insufficient to overcome the resistance of the mesenteric glands, certainly in those cases in which the mesenteric glands have succumbed, the bronchial glands should show the earliest and most pronounced degeneration; but the contrary is the case, and it is now generally agreed that primary infection of the lungs through the thoracic duct, without abdominal tuberculosis, must be comparatively rare if it ever occurs.

If we inquire why some men become infected whereas others escape, there are two possibilities; lack of opportunity may save some, and lack of resistance may result in the destruction of others. It is undoubtedly true that some men are but comparatively slightly exposed; and even with but feeble resisting power they may escape infection owing to favorable environment; on the other hand heightened resistance may enable one to resist the same degree of exposure to which another succumbs. Exactly to what this power to resist infection is due has not as yet been discovered; but there are evidently many factors which enter therein. Race is an important factor. The black race is more susceptible than the white; the Swede more than the Teuton; and the Teuton more than the Jew. Heredity is claimed to be responsible for lack of resistance in a certain proportion of the cases; but while this is undoubtedly true, heredity probably plays a far less important rôle than is commonly assigned to it. A tuberculosis developing from a latent focus is all too often ascribed to heredity, when it should be ascribed to a direct infection from the parent or from some other source. Diminished resistance to tuberculosis is found in trades which compel the inhalation of great quantities of dust, and in those in which a cramped position of the chest renders the proper aeration of the lungs impossible. Lack of fresh air and sunshine diminish the resisting powers of the organism; so also do overwork and worry; acute diseases, and certain chronic diseases and malformations predispose to infection. How often influenza, measles, pneumonia, etc., are followed by some form of tuberculosis! Children are more susceptible to certain forms of tuberculosis than are adults; especially tuberculous bone and joint lesions, tuberculous glands, and tubercular meningitis. But these do not generally appear in the vital statistics, for only the last is commonly fatal, and it is comparatively rare. Of 62,000 deaths from tuberculosis in two-fifths of the United States in the year 1900, about 4 per cent. were meningeal, of which 83 per cent. were in children under 15; but of 55,000 deaths from pulmonary tuberculosis, only 3,400 or about 6 per cent. were in children under 15 (8).

In addition to these general causes for diminished resisting power, there are other causes more local in action. The resistance to tuberculosis is not only a property of the body as a whole, but it is a property of each particular tissue, and injury to any tissue necessarily reduces its resisting power to infection. A slight sprain or contusion often is the contributing cause for a tubercular bone or joint lesion. The inhalation of great quantities of dust irritates the lungs, and predisposes to phthisis. An inflammation of the throat with the accompanying absorption of toxines into the neighboring lymph nodes markedly reduces their powers of resistance to the tubercle bacilli. For example, measles, influenza, pertussis, inflammations of the tonsils, both faucial and pharyngeal, abscess of a tooth, and even common colds, predispose to and are often followed by tubercular cervical adenitis.

In this connection it should be noted that enlarged tonsils and adenoids increase the susceptibility to tuberculous infection of the cervical lymphatics. The reason is evident. The area for lodgment and absorption of the tubercle bacilli is greatly increased; the nose is constructed to filter out bacilli, and its secretions to destroy them, but in well-marked cases of adenoids, nasal breathing is impossible and the air reaches the throat laden with dust and germs, for which it was never intended; proper aeration of the lungs is interfered with, thus diminishing the general power to infection; and the local powers of resistance of the neighboring glands are likewise diminished by the constantly recurring attacks of inflammation and acute infections to which this class of cases is particularly liable.

It is doubtless true, in many cases, that the tubercular infection is so prolonged, or so intense, that the cervical glands would eventually succumb without any contributing cause; but even in such cases, intercurrent infections play a very important rôle in increasing the relative virulence of the tubercular infection, and in diminishing the normal powers of resistance of the tissues involved. In a very large proportion of the cases, it is impossible to escape the conviction that the glands might have overcome the tubercular infection but for the presence of an intercurrent infection and the toxic absorption associated therewith.

Anatomy.

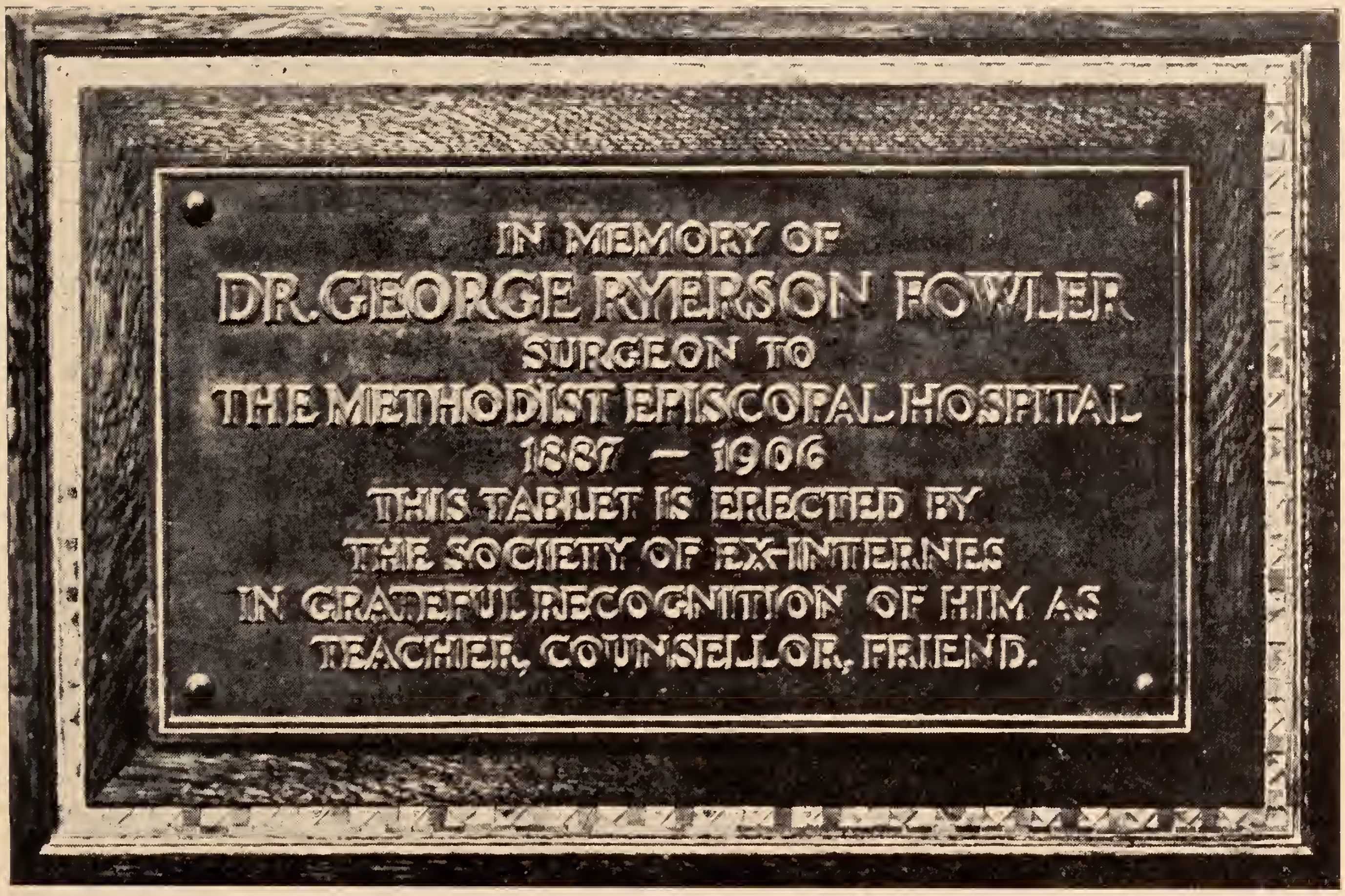
In order to understand the relationship of the various groups of glands to the different portals of infection, and to the subsequent course of the disease, an accurate knowledge of the lymphatic distribution of the head and neck is essential. With this, I presume you are all familiar, but allow me to call particular attention to a few facts in this connection, and their significance.

The lymphatic glands of the head are collected into groups about its base as follows: Beneath the occipital protuberance, over the mastoid process, on, in, and beneath the parotid gland, and beneath the ramus of the inferior maxilla. Except the deep parotid lymphatic glands, all these receive the lymph streams from the scalp and face, directly, or through intermediate lymph nodes, hence, they are regularly the first to show reaction as the result of infection in the areas drained by their efferent vessels. To this there is one exception; some of the occipital vessels empty directly into the upper deep cervical group, and, consequently, this group may be the first affected as the result of an occipital infection. The first three of the capital groups, the occipital, the mastoid, and the superficial parotid, empty both into the superficial, and deep cervical glands; hence, both these latter groups may become infected simultaneously by extension of infection from any one of the three. The deep parotid glands receive their afferent vessels from the external meatus, tympanum, soft palate, posterior part of nose and deeper portions of cheek; they are rarely the seat of tubercular infection.

The lymphatic glands of the neck are most conveniently classified into two groups; those which are associated with the jugular veins, external and internal, and those which are not so associated: To the latter belong three principle groups; the submaxillary, the submental and the postpharyngeal. The first of these, the submaxillary group, we have already mentioned in connection with the glands of the head. The submental glands receive afferent vessels from the middle of the lower lip and adjacent portions of the gums, the anterior part of the floor of the mouth, the tip of the tongue, and the skin beneath the chin; this group of glands is usually involved in epithelioma of the lower lip and tip of tongue, but is not often implicated in tuberculous processes; their efferent vessels terminate partly in the submaxillary glands, and partly in a deep cervical gland situated on the superficial surface of the internal jugular vein at the level of the cricoid cartilage. The postpharyngeal glands lie behind the pharynx in front of the upper cervical vertebrae; their afferents are derived from the nasal cavities and the sinuses connected therewith, from the naso-pharynx, the eustachian tube and tympanic cavity, and from the adjacent muscles, ligaments and bones. They become infected fairly frequently, and form the foci for postpharyngeal abscesses, both tubercular and non-tubercular, and their efferent vessels transmit infection to the upper deep cervical glands.

The glands associated with the jugular veins, form three chains. The superficial cervical lymphatic glands are distributed along the course of the external jugular vein; they receive afferent vessels from the superficial tissues of the neck, and from the superficial parotid, the mastoid, and the submaxillary lymphatic glands; their efferent vessels terminate in the upper deep cervical glands, and in the supraclavicular glands. The deep cervical glands form two principal chains. The posterior chain lies behind the internal jugular vein, under cover of the posterior border of the sterno-cleido-mastoid muscle above, and in the anterior part of the supraclavicular triangle below; above, it receives afferents from the occipital, mastoid and superficial cervical glands, from the pinna, posterior part of the scalp and adjacent muscles, and the skin and bones of neck; below, the afferent vessels are derived from the neck, upper extremity, mamma, and pectoral region. Superiorly, the efferents connect with the internal chain; inferiorly, they terminate in the jugular lymphatic trunk. Through their connection with the axillary glands, tubercular infection is not infrequently carried into the axilla; and conversely, infections in the axilla or breast are often transmitted into the neck. The internal chain of deep cervical lymphatics extends along the internal jugular vein from the base of the skull to the clavicle; for convenience, it is usually divided into an upper group above the thyroid cartilage, and a lower group below that cartilage. The upper group derives its afferents from the interior of the cranium, the nose, the pharynx, the palate, the tonsils, the upper part of the larynx, the thyroid body, and the entire tongue except the tip and anterior third of each lateral margin. Furthermore, this upper group receives as afferents the efferent vessels from the buccal, the internal maxillary, the retro-pharyngeal, the sub-parotid, and deep parotid glands, and above from some of the glands of the external chain. Owing to its connections with parts which are frequently the site of infection, this upper group is usually the first and most affected of the deep glands. The lower group receives its afferent vessels from the upper glands of the external chain, from the prelaryngeal glands, and indirectly through small lymph nodes, from the trachea, esophagus, and lower part of the thyroid; these glands rarely if ever become infected except indirectly through the neighboring glands. The efferents from both the upper and lower groups unite in the lower part of the neck to form a common jugular trunk; this is joined by efferents from the external chain, and empties either into the subclavian vein or into the internal jugular vein, directly, or through the thoracic duct or right lymphatic duct. When the intervening groups of glands have succumbed to the action of the tubercular infection, and the tubercle bacilli reach the common jugular trunk they are carried directly into the capillaries of the lungs; hence it is that a general miliary infection is sometimes the result of a progressive tubercular cervical infection, and if a general miliary infection does not result, local foci may be established in other parts of the body. The intercostal glands are situated on each side of the spine, near the costo-vertebral articulation. The posterior mediastinal glands are situated in the areolar tissue in the posterior mediastinum, forming a continuous chain by the side of the aorta and esophagus; they communicate on each side with the intercostal, and above with the deep cervical, and along this line infections may be carried into the mediastinum and thence to the pleura. The efferent vessels from the bronchial glands terminate in the thoracic duct and right lymphatic duct, but likewise communicate directly with the deep cervical; through this line the bronchial glands and the lungs may become infected, and it is a fact of general experience that infections of the lung are apt to be associated with bad cases of enlarged cervical glands. Robertson (10) lymphatics, Cunningham (11), Gray (12.)

(To be continued.)



IN MEMORY OF
DR. GEORGE RYERSON FOWLER
SURGEON TO
THE METHODIST EPISCOPAL HOSPITAL
1887 — 1906
THIS TABLET IS ERECTED BY
THE SOCIETY OF EX-INTERNES
IN GRATEFUL RECOGNITION OF HIM AS
TEACHER, COUNSELLOR, FRIEND.

On Sunday March 31, 1907, the Society of Ex-Internes of the Methodist Episcopal Hospital, of Brooklyn, unveiled the above tablet in memory of Dr. George Ryerson Fowler, surgeon to the Methodist Episcopal Hospital from 1887 to 1906.

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Further information on advertising page 34

THE JUNE MEETING OF THE ASSOCIATED PHYSICIANS OF LONG ISLAND.

ON Saturday, June 22, 1907, the Association held its "outing" meeting at Patchogue, Long Island. The special train which was provided by the Long Island Railroad left Flatbush avenue at 12.12, and arrived at Patchogue shortly after two. About 150 Brooklyn members of the Association were present; the day was perfect and was partly responsible for the large attendance. The President, Dr. Arthur Terry, read his inaugural address, and introduced Dr. George McNaughton, who spoke on "The Technique of Office Gynecology," and Dr. Robert L. Dickinson, who discussed the subject of "The Gynecology of the General Practitioner." His paper, which will be published later, dealt with some necessary and neglected considerations of preventative gynecology; the function of the family doctor as instructor at puberty, the day before marriage, in the first pregnancy, in the regulation of future pregnancies, and in certain ignorances and mal-adjustments of marital relations leading to estrangements and divorce.

After the meeting the members were conveyed by boat to the White House on the Beach, where a shore dinner was served. The day was a most enjoyable one throughout, and did much to cement the feeling of friendship between the members of the Queens-Nassau and Suffolk County Societies and those of the Kings County Medical Society. It is hoped that an even larger number will attend the October meeting.

THE MEDICAL LIBRARY ASSOCIATION OF BROOKLYN.

THE Fourth Annual Report of the Medical Library Association of Brooklyn, for the year 1906, which has just been published, includes a summary of its work for four years, and a list of its members and officers. If one is not familiar with the work done by this Association, a few facts contained in this Report will bear repeating. In the first place, the Medical Society of the County of Kings is the only County Society in the United States maintaining a library of such proportions; it is the fourth largest medical library in the United States, containing over 60,000 volumes. The growth of this library has taken place despite the great limitations under which the Association has labored. The dues of the County Society are already as great as it is possible to make them, being at present the heaviest of any County Society in the country; they are almost prohibitory to some of the younger men, and even for the sake of increasing the income for the Library it would not conserve the best interests if we were to raise the dues. When we compare our own resources with those of the New York Academy of Medicine, which has only 20,000 more volumes, it is remarkable that we find ourselves in such a healthy condition. We have an income of $7,500 a year from dues, which is barely enough to pay the salaries, expenses of maintenance and interest on the mortgage. The annual income from the endowment fund is $400, and this, with an additional sum of $100, is all that the Society can depend upon for the purchase of new books. Up to the first of January, 1907, the County Society published its own journal, and practically all of the Medical books of any importance, which were printed in English, were sent to this journal for review, and thus became the property of the Society. By an agreement with the State Medical Society, the *Brooklyn Medical Journal* was discontinued and the books sent for review to the *New York State Journal of Medicine* are deposited in our library, but remain the property of the State Society. The LONG ISLAND MEDICAL JOURNAL, which is the property of the Associated Physicians of Long Island, has filled the gap left by the Brooklyn Medical Journal, and at present all of the books which come to it for review are deposited in the Library of the County Society, but still they remain the property of the Associated Physicians of Long Island, so that the Library does not receive any books of its own from these two Journals, but simply has the use of them.

The Medical Library Association was founded in 1903, and now shows a membership of seventy-two men. Its object is to supply the Library with a steady supplementary income to be used for the purpose of caring for our present collection and augmenting it. The yearly dues of the Association are $10, and its Annual Report is submitted in the hope that the ranks of the Library Association may be increased by men who are able and willing to assist in the good work.

STERILIZED HORSE SERUM IN SURGERY.

THE Medical Record of June 22, 1907, contains a most interesting article by Raymond Petit, of Paris, who has been experimenting with injections of isotonic solutions into the peritoneal cavity in animals; he found that there was an afflux of polynuclear white blood cells to the injected area, increasing in this way the local resistance. He uses sterilized horse serum as an injection, since it produces polynucleosis most easily; after an injection of this serum, large doses of *bacterium coli* and *staphylococcus pyogenes* may be injected into the serous cavities with impunity. The experiments have been carried on in more than one hundred cases in human beings with most satisfactory results; but the experiments can not be accepted until they have been substantiated by other observers under varying conditions. The serum has been recommended as a prophylactic measure in non-septic surgical abdominal operations, by pouring the serum into the cavity that has been opened, and drainage by gauze saturated with the serum. In septic cases it is recommended that it be used by packing the cavity with gauze saturated with the serum. The most striking feature of the report is the claim that the character of the pus is changed at once from a serous fluid to a thick, creamy secretion containing many polynuclear leucocytes. The many suppurative conditions in which it is recommended would, of itself, make us hesitate until further proof of its usefulness had been demonstrated. For instance, it is claimed that in phlegmonous infections and in burns, where it has been used, healing and cicatrization were rapidly effected, cure being obtained in many desperate cases. The writer does not mention any failures, but undoubtedly there must be many.

MEDICAL NEWS.

The American Medical Association Meeting—The meeting of the American Medical Association held this year at Atlantic City was a most successful meeting; all those who attended the various sections were well repaid for their trip, and came home enthusiastic and inspired to better work. Among those who were present from Brooklyn were the following: Drs. Ager, Alleman, Bartley, Bristow, Browning, W. F. Campbell, Emery, Hancock, Hoole, Mason, Moak, Mosher, Ohly, H. N. Read, F. C. Raynor, Sherwood, Warbasse, Winfield, C. Jewett, A. R. Matheson, McClelland, L. S. Pilcher, W. G. Reynolds, Spence, P. H. Sturgis, Webster and Mr. Huntington. It was a deplorable fact, however, that of all the papers presented before the General Society, only one was by a Brooklyn man; this does not speak very well for the enthusiasm of the professional men of this Borough, for many have the ability, but lack the energy to present subjects for discussion before the great Central Society.

Medical Society of the County of Kings—At the June meeting of this Society the scientific programme was arranged by the Pediatric Section of the Society, Dr. Louis C. Ager, Chairman. The meeting was addressed by John Lovett Morse, of Boston, who presented for discussion the subject of "Infantile Scorbutus." The provisions of the Medical Unity Bill were discussed by Dr. A. T. Bristow. The following men completed their membership in the Society: Dr. W. F. Bozenhardt, P. J. Gunthner, A. G. Horstman, William Lintz, Alfred Potter and A. W. Beck.

Change of Address — Edward Eberle, 684 East 17th Street; Frederick C. Gay, 7 Hancock Street; Stewart Lewis, 37 Cambridge Place; Samuel A. Marshall, Lincoln Place and Franklin Avenue; James Clayton Sharp, 436 Ninth Street, all of Brooklyn.

Physical Welfare of School Children—Thursday evening, June 17, a Conference on the Physical Welfare of School Children was held in the Kings County Medical Society Building, Dr. Louis C. Ager acting as Chairman. The Conference was well attended and many interesting papers were presented by those more especially interested in school work. Some of these papers will be published in a later number of the JOURNAL.

Brooklyn Surgical Society — At the regular meeting of the Society, held June 10, 1907, Dr. Arthur H. Bogart, of 135 Seventh Avenue, was elected President for the ensuing year. Dr. George L. Buist, Jr., was elected to the office of Secretary.

Brooklyn Pathological Society—At its June meeting the following officers were elected for the ensuing year: President, Dr. Raymond Clark, of 310 Clinton Avenue; Vice-President, Walter A. Sherwood; Secretary, Claude C. Crane; Treasurer, Henry C. Keenan; Librarian, J. Eddy Blake. A committee was appointed by the Chair to make a revision of the By-Laws of the Society.

Certified Milk — The Milk Commission of the Medical Society of the County of Kings, of which Dr. William A. Northridge is Chairman, have put the seal of the Medical Society of the County of Kings upon the bottles containing certified milk as presented for sale by the following companies; the average of butter fat in the certified milk, from January 1 to June 1, 1907, is noted as well:

Alex. Campbell Milk Co.,		
One farm marked "C"	5.21	per ct.
One farm marked "P"	5.47	"
One farm marked "S"	4.56	"
One farm marked "T"	4.50	"
H. S. Chardavoyne	4.05	"
Diamond Dairy Co.	4.49	"
Empire State Dairy Co.	4.39	"
W. M. Evans	4.39	"
Isaac W. Rushmore	4.51	"
Sheffield Farms	5.55	"
Taylor Plate Milk Co.	4.20	"
Wm. A. Wright	4.27	"

Dr. Walter B. Chase and family are occupying the Rowland Cottage at Setauket, L. I., for the summer season. Dr. Chase will be in his office, 936 St. Mark's Avenue, Tuesdays and Fridays, from 1 to 2 P. M., and by appointment.

Dr. Cecil MacCoy—Mrs. Lafayette Mercereaux announces the marriage of her daughter, Elenor Cornelia, to Dr. Cecil MacCoy, on Wednesday, the 12th of June, 1907, at Brooklyn, N. Y. Dr. and Mrs. MacCoy will be at home after the 1st of July at 151 Clinton Street, Brooklyn.

Dr. O. Roth, of Lübeck, Germany, recently visited Brooklyn and demonstrated the Roth-Dräger anesthetic apparatus.

Long Island Society of Anesthetists—At the regular meeting of the Society, held June 5th, at St. John's Hospital, papers were read by Dr. Jewett and Dr. Gwathmey, and the Roth-Dräger apparatus was demonstrated.

Dr. L. T. Jackman announces the opening of a private hospital for the treatment of medical, surgical, obstetrical and mild nervous cases, at 257 Twelfth Street, Brooklyn; telephone, 45 South.

Dr. J. Richard Taylor, of 1275 Bedford Avenue, Brooklyn, announces that he will devote himself exclusively to the practice of gynecology and abdominal surgery.

Dr. W. C. Riggs announces that he will carry on the practice of the late Dr. Brewster, at 126 Lefferts Place, Brooklyn.

Dr. John R. Stivers has been operated on for appendicitis at St. John's Hospital. He is now entirely recovered.

TRANSACTIONS

OF THE

BROOKLYN SOCIETY FOR NEUROLOGY

EDITED BY FREDERICK TILNEY, M.D.

The President, DR. F. C. EASTMAN, in the Chair.

At the 105th regular meeting of the Society, held March 28th, 1907, the following papers were presented in symposium consideration of *"The Relation of Rhino-pharyngeal Affections to Neurology."*

I. **Obstruction of the Upper Respiratory Tract. By W. F. Dudley, M.D.** (For which see page 281.)

II. **Nasal Disease: Its Relation to the Trifacial Nerve. By Charles N. Cox, M.D.** (For which see page 283.)

III. **The Accessory Sinuses and Meningitis. By Charles W. Stickle, M.D.** (For which see page 286.)

IV. **The Nasal Reflex. By Arthur Conklin Brush, M.D.** (For which see page 288.)

DISCUSSION.

DR. SHEPPARD said that adenoids are closely allied to his work. As he remembered, Dr. Dudley gave the etiology of this condition as repeated inflammatory processes. This may no doubt be the case, but it has always been a theory of his to attribute the disease to the kind of air we give our children to breathe in large cities, and particularly in Brooklyn, both indoors and out. This impure air, striknig the naso-pharyngeal structures 18 to 20 times per minute, causes a perfectly natural hypertrophy, so that, in his opinion, it is time for the medical profession to take a hand in preventing adenoids by seeking to change the conditions so largely responsible for the bad air of our city.

Dr. Cornelius said that, bearing upon the relation of the upper air-passages to the nervous system, he desired to give the history of a case of reflex asthma seen in his early practice. The case was that of a man who suffered from asthma and had traveled all over the world in search of relief. On his first examination the doctor found a small ulcer on the right side of the nasal septum, which subsequently cleared up upon application of silver nitrate solution, whereupon the asthma entirely disappeared. The ulcer was several times recurrent, and on each occasion the asthmatic symptoms became annoying; these latter, however, promptly ceased when the ulcer was again subjected to treatment and cured.

Opening the discussion of Dr. Cox's paper, Dr. Sheppard said that in many cases of middle-ear inflammation the sense of taste was affected on one side of the tongue. This symptom is not often looked for, but those who have removed ossicles know that the chorda tympani may be easily injured; subsequently the patient complains of a bad taste or lack of taste-sense on one side, which, however, generally disappears within a week or so. The chorda tympani seems to be of chief importance in locating the site of injury to the facial nerve. But this is more the work of the neurologist than of the otologist.

Dr. Brush said that the anatomy of the chorda tympani had been subjected to a number of revisions, and that the exact facts concerning it were in many particulars undecided even yet.

Dr. Price, in discussing Dr. Stickle's paper, cited a case of very extensive invasion of several of the accessory sinuses, giving a complete pathological report of the same, to be published in full elsewhere. A number of osteological specimens were exhibited by Dr. Price to demonstrate pathological conditions in the sinuses.

Discussing Dr. Brush's paper, Dr. Cox said that, in relation to the reflexes, he had been reminded by the paper of a normal phenomenon which he called "the sneezing reflex." Coughing, likewise, he considered a normal reflex; if coughing occurs due to irritations of some unusual area, this he called an abnormal reflex. So there may be a sneezing reflex occasioned by irritation in some portion of the naso-pharynx.

At the close of the meeting, a committee was appointed by the president to draw up resolutions relative to the death of Dr. R. C. F. Combes, vice-president of the society.

TRANSACTIONS

OF THE

BROOKLYN SURGICAL SOCIETY

Regular Meeting, April 4, 1907.

The President, O. A. GORDON, M.D., in the Chair.

PERFORATIVE APPENDICITIS.

DR. WM. MADDREN, reporting this case, said that the point of interest was the satisfactory result obtained by the open treatment of the wound. The appendix was imbedded in adhesions, perforated and surrounded by broken down material. No suture was used in the case. What was left of the appendix was laid open, the wound thoroughly wiped out, drained and packed with plain gauze. The wound was cleaned from time to time with peroxide and lightly repacked; later, balsam peru was substituted for the peroxide.

The operation was done on January 25th. It was a case of recurrent appendicitis, this being the third attack. The temperature had reached at the highest only about 100, and there had been some chilly feelings. It was an appendical abscess. While he was not able to take out the appendix, he was able to destroy it quite thoroughly. The result was good.

DR. W. H. MADDREN added that the wound was less than two inches deep at any time. It was a very superficial appendix, and there was no fear of a hernia because everything was matted together underneath it.

PREVENTION OF UNNECESSARY ORTHOPEDIC COMPLICATIONS.

A paper with the above title was read by CHARLES D. NAPIER, M.D.

DR. J. C. KENNEDY said that the doctor offered an excellent suggestion to the general surgeon in fractures of the femur where we very often get shortening. He thought it well to remind patients that lateral curvature of the spine may result unless the fracture is properly taken care of.

DR. R. W. WESTBROOK stated that one often sees deformities which could be very readily avoided with a little orthopedic treatment. He saw a case recently of fracture of the leg, with considerable shortening, where there was a marked scoliosis and other deformities. He also saw a very wonderful case once exhibited of a gunshot wound in the cervical region, and very wonderful recovery, but the boy with his various paralyses was twisted up into all sorts of deformities, which could probably have been very largely prevented so that it might have been possible for him to have gotten about, as he regained considerable function in his extremities as time went on. He thought it advisable, as far as possible, that the surgeon have a pretty fair degree of orthopedic training, and training in the use of apparatus and support; and the few practical ideas which such training leaves with him will often help him out in the prevention of very troublesome conditions later on.

DR. M. FIGUEIRA said that the doctor's remarks put him in mind of two cases, one he saw and one now under his care. He saw a case of fractured leg with shortening, in which he remarked as to how it could be avoided by proper appliance, and to his great astonishment learned that the shortening had existed long before the fracture. The patient had a curvature of the spine long before the break in the leg occured, and the fracture had nothing to do with it, so in these cases before we criticise, it is better to be sure.

The other case he has now is a fracture of the spine, with resection and paralysis. He supposed, in the future when some wise surgeon comes along and finds some deformities and contractures and defects, he will wisely shake his head and say if the doctor that treated this man knew orthopedics, he would have done this and this. As a result of the paralysis the nutrition of limbs is much impaired, so that the use of any apparatus to correct the deformities produced by paralysis causes local injury. A retention apparatus could not be put on this patient as it would interfere with circulation. He tried to stand the boy up and move his limbs, and the circulation was so poor he got up a bad ecchymosis of the lower extremities, and he feared for a time the boy was going to have gangrene, so he let him alone. He had no doubt the boy in time will have some deformities which cannot be helped.

Dr. C. D. Napier, in conclusion said that the general surgeon, of course, can apply some of these principles to cases with which he is familiar. Certainly the cases that Dr. Figueira spoke about, the paralytic cases or spastic paraplegia, are most difficult, and we practically have to give them up as to prevention of deformities. At present he is treating a child with Pott's paraplegia, which had existed for two years before he saw him, so that there were changes in the spinal cord. For two years he persisted in keeping the child at some extension to prevent deformities; during this time the child rolled over in bed twice and fractured first one and then the other femur, and he is now no better off than two years ago. Contractures had been prevented, but he had not been able to get the child on his feet. These cases are very trying, the speaker said, and, of course, we can merely get along as best we may.

EXTENSIVE PERI-RECTAL ABSCESS.

Dr. W. H. Maddren said that he wished to report this case because of one or two points of interest. In the first place the absolute lack of any past history or causative feature and the extreme virulence of the infection. It occured in a young girl, nineteen years old, who had no symptoms or any cause for an abscess, as far as he could tell. There had been no fall, no undue exertion, no constipation preceding it. She first consulted him because of a constipation lasting two days, which was due entirely, he thought, to the pain. It was a voluntary constipation. He attempted to move the bowels by giving ten grains of calomel, followed by a saline and was successful. Examination was impossible on account of the extreme tenderness of the rectum. He gave an anesthetic the next day and made an examination, but was unable to localize the abscess. Her temperature at that time was above 100. The following day the temperature had risen somewhat, and he made another examination under an anesthetic, and found what he thought to be a localizing point of the abscess on the left-hand side just inside the sphincter. That examination was followed in the afternoon by a very severe chill, the temperature rising to 103, and a rapid pulse. That night a flaxseed poultice was applied to the rectum and anus, and the girl lay upon her face, as it was so painful to lie on the back. In the morning he found the abscess pointed to the outside, and it ran up into the left vulva up to the top of the symphysis. He immediately incised it from the symphysis way back to behind the rectum on the left side and across the raphe behind the anus. A large quantity of pus was evacuated, and by means of the finger in exploration the abscess cavity was found to extend almost to the promontory of the sacrum and to encircle the rectum with a little partition in front.

The girl did not improve as much as was desired, and two days after that he was obliged to slit up the other side, so that the total cuts aggregated something like fifteen inches. Her temperature immediately began to fall, and washing out the wound with a formalin solution twice a day for four or five days brought her into good shape. In the meantime she had begun to show symptoms of sepsis before the second incision was made.

She made an uneventful recovery. The wounds all healed up and there was no untoward symptom remaining.

The interesting point of this case, was the absolute lack of any causative feature that he could determine, and the extreme virulence of the infection, because everything that the pus touched sloughed. It had the appearance almost of an extravasated urine.

Dr. Wm. Maddren said that the interesting feature of the case was the death of the cellular tissue. It could be likened to nothing else than a case of extravasated urine in an old man, and it was a stinking, sloughing condition. Its rapidity and virulence in an apparently healthy and young woman was hardly to be accounted for. There was no cause to be ascertained for it. Possibly it was produced by the gas bacillus.

SARCOMA OF LEG AND THIGH.

Dr. R. W. Westbrook stated that in December, 1905, Dr. George R. Fowler presented before this Society a man, 23 years of age, stenographer by occupation, with the following history: Three years previously the patient began to have pain in his right leg, and after suffering some months, the diagnosis of neuritis was made. The pains increased greatly in the seven months prior to his coming into Dr. Fowler's hands, at which time, May, 1905, a small lump appeared in the popliteal space, accompanied with inability to fully extend the leg. Antisyphilitic treatment had been thoroughly used. but proved of no value, and there was no history of syphilis. The patient walked with a limp, and the limb was weak.

Upon examination Dr. Fowler found a hard projection in the popliteal space, obscure as to its deeper boundaries, and under an anesthetic it could be traced with difficulty in an upward direction. An incision was made over the most prominent part, and the growth exposed. In following it in an upward direction, it was found to run alongside of what seemed to be a half-sized sciatic nerve. At the lower border of the pyriformis muscle, the growth tapered down to a considerably smaller size. Upon lifting the pyriformis and pursuing the search still further, Dr. Fowler finally came to what appeared to be a second sciatic nerve lying to the outer side of that involved in the growth. Cutting down upon the latter he divided it an inch above the growth, and following the tumor in a downward direction, he found it to terminate in the middle of the calf, when it was again divided, and the whole mass cut away. Dr. Fowler believed that he had met with a high bifurcation of the sciatic nerve, and that he had cut away the whole division representing the internal popliteal nerve, that whole portion being involved in the growth. Having in mind the probably great loss of function in the leg due to the removal of so much of its nerve supply, he took advantage of the presence of a rather large nerve trunk, corresponding to the *communicans peronei* branch of the external popliteal, which he divided half across, split, and attached the split portion to the stump of the nerve from which the growth had been severed.

The man made a good recovery; the very long incision healing by primary union, and, strangely enough, the patient recovered immediately all the motions of foot and toes. Dr. Fowler did not explain how an immediate restoration of function could occur if the internal popliteal were removed, but suggested if it were not through the *communicans peronei* branch, it might be accounted for through an abnormal nerve distribution.

The patient did well for some ten months after the operation, following his regular work, and then returned to Dr. Westbrook complaining of stiffness and swelling in the leg and thigh; there was a general enlargement of the calf, not of the nature of swelling, although the patient was positive that it varied in size. Returning again about a year after the time of operation, the leg was seen to be rapidly enlarging, and a large mass was apparent in the upper part of the thigh posteriorly, and the whole appearance suggested sarcoma. Thirteen months after the first operation, the speaker removed the mass from the back of the thigh, and examination proved it to be a small round-celled sarcoma. The patient was told that his only chance lay in amputation at the hip joint, and that this did not promise much. He, however, wished the operation done, and in June, 1906, Dr. Westbrook performed a hip joint amputation after Wyeth's method, from which he made a good recovery. Before he left the hospital, however, a recurrence had shown itself in the glands of the neck. The administration of Coley's erysipelas toxines was at once begun, but death resulted some weeks after the patient had left the hospital.

There are some interesting points in this case, the speaker said, which the later history seems to explain. Dr. Fowler believed that the growth was a neuro-fibroma, the history of three years of preceding pain pointing to a non-malignant condition. The latter findings go to show that it was probably a neuro-fibroma at the start, and underwent a transition into sarcoma. Dr. Fowler also believed that he had removed the internal popliteal division of the sciatic nerve presenting a high bifurcation; that this could not have been true is shown by the fact that no loss of function occurred in the leg and foot, and when he came into Dr. Westbrook's hands there were only certain areas upon the leg showing lack of skin sensation to represent loss of nerve function. It is probable that the growth involved the lesser sciatic nerve, which makes its exit from beneath the pyriformis with the great sciatic and passes down the middle of the thigh along the inner side of the great sciatic, and distributes cutaneous branches to the calf. The main trunk of the lesser sciatic lies under the deep fascia of the thigh and emerges from it at the popliteal space where the growth first became apparent.

Nerves distributed to the skin are more frequently the seat of neuro-fibromata than those having a deeper distribution. The speaker regretted that he had not at his command the slides made from sections of the original growth removed by Dr. Fowler, but he thought there was little doubt that that growth, which he here presented again, had undergone a transition to sarcoma at the time of its removal.

Of the lower extremity amputated by him, he could show only the leg below the knee, the whole extremity being too large to handle. Primary sarcomata, the speaker said, originating in nerve sheaths are rare. The nuero-fibromata which form the variety of growth which probably preceded the sarcoma in this case are, of course, not growths originating in the nerve tissue proper, but in the connective tissue surrounding the nerve, and are classed as "false neuroma."

Dr. M. Figueira said the unfortunate thing seemed to be the doubt in the doctor's mind as to whether the growth involved one of the popliteal nerves. As he understood it, Dr. Fowler removed that part of the nerve from the knee joint to the middle of the thigh. He thought it would be proper to follow down the sciatic nerve in the specimen, dissect down to the branches, and see if Dr. Fowler removed the growth from the nerves.

Dr. R. S. Fowler said it would seem rather extraordinary if this was a sarcoma at the time the first operation was done, that recurrence was delayed so long. He assisted at the original operation. It was simply a dissection of a mass of supposedly nerve and fibrous tissue, with no attempt at wide extirpation of the mass, so if that were a sarcoma at that time there should have been, according to our experience with other sarcomas, a very rapid recurrence. This man was ten months before he again came under observation. It is possible that the case is one of sarcoma arising in the scar tissue following the first operation. Such cases have been reported.

Dr. R. W. Westbrook said that Dr. Figueira's criticisms were quite right, but that the specimen was a big leg and he did not have time to dissect it. He turned it over to another who preserved it. It was their intention to dissect it later, but unfortunately they did not. If the dissection had been done at the time it would have cleared up the interesting facts in the case.

The man came to him about ten months after the operation by Dr. Fowler, and at that time there was quite a marked swelling of the calf. The man said he had had some swelling right along, but it fluctuated. It did not pit; it was not oedema. There was no hard tumor demonstrable; it was a general enlargement of the calf. When the speaker saw him again the swelling had much increased, and in the last two weeks before operation it grew quite rapidly, and then the mass in the back of the thigh became more noticeable and could be readily grasped and moved from side to side. It might have been that this condition obtained in the main trunks of the sciatic nerve itself, as neuromas may be multiple in occurrence. It is possible that this later growth developed from the main sciatic nerve, which may have been involved in the same innocent growth to begin with. It was a slow-going recurrence, and the whole thing was a slow-going affair. These neuromas, as a rule, do not cause much disturbance; they may cause a good deal of pain, but when Dr. Fowler saw it there was a marked tumor in the popliteal space, and evidently that tumor developed comparatively recently when the case came into his hands.

Dr. Browning looked the man over very carefully before the development of the tumor, the speaker said, and he came to the conclusion it was a neuritis, and he thought these cases are diagnosed usually as neuritis from the pain alone. His pain had lasted three years. Then this growth was removed, and then it was another year before the secondary operation. He saw no other explanation than that he gave, that it was a neuro-fibroma to start with, and that it changed into sarcoma.

As regards what was to be done for the man, in this case it was not an amputation for sarcoma affecting the bones of the lower extremity. The amputation was done to clear away the soft tissue as high as possible connected with the lower extremity. He did clear away everything beneath the pyriformis muscle, and removed the structures as far as he could on the pelvis. The man made a good recovery. There was no recurrence in the neighborhood of the operation, but it was elsewhere.

APPENDIX HERNIATED THROUGH MESO-APPENDIX.

Dr. O. A. Gordon presented a specimen showing an appendix, the tip of which protruded through a slit in its meso-appendix. The appendix was twisted on itself in passing through the slit.

The patient, a girl, 14 years old, was taken sick on a Tuesday night with all the symptoms of acute appendicitis, vomiting, pain, tenderness and rigid abdominal muscles, elevated temperature and rapid pulse. On Wednesday she was very much relieved; on Thursday evidently all the symptoms had cleared up. He did not see her on Friday, and that night the symptoms returned. Saturday he removed her appendix, and conditions as above narrated were found. He was able to slip the appendix back through the slit; it was very little inflamed, but thickened. She has been entirely relieved since the operation. Her mother says the child often had attacks of vomiting. Whether the condition had been present long or not he did not know. The speaker said he could find no record of a similar case.

TRANSACTIONS

OF THE

BROOKLYN PATHOLOGICAL SOCIETY

EDITED BY CLAUDE G. CRANE, M.D.

475th Regular Meeting, March 14, 1907,

The President, R. W. WESTBROOK, M.D., in the Chair.

WHAT THE CLINICAL PATHOLOGIST CAN REALLY DO NOWADAYS FOR THE PRACTITIONER.

A paper with the above title was read by WILLIAM N. BERKELEY, M. D., of Manhattan. This appears in the present number of the JOURNAL.

PATHOLOGICAL SPECIMENS: ADHESIVE PERICARDITIS AND CARDIAC HYPERTROPHY.

DR. H. M. MOSES in presenting a specimen of adhesive pericarditis said that it was obtained from the dissecting table. He found a calcareous plate in the aorta, and stated that not only did the subject have an adhesive pericarditis, but there was also present a vegetation in the aorta beyond the calcareous plate. The speaker quoted Osler as saying that there is probably no serious illness, which is so frequently overlooked by the practitioner, and he added it is overlooked more commonly in diseases of children than it is in older people. The common cause of pericarditis is rheumatism, and in children oftentimes we get no joint symptoms. The lesions are focussed in the pericardium.

The second specimen was merely an unusually enlarged heart in a case which followed aortic regurgitation.

SPECIMEN: ACRANIUS.

DR. ROGER DURHAM said that he succeeded in obtaining this specimen with the help of Dr. Sharpe, who attended the case. It was a fetal monstrosity, an acranius, with so-called anencephalus. The patient from whom the specimen was taken was seven months pregnant, when without any known cause the death of the fetus occurred, and two days later premature labor took place. There was nothing in the history of the woman to suggest the condition found at labor, and the only peculiarity about the labor was the smallness of the head, which did not cause full dilatation, so that the shoulders coming afterward had to do that work. Of course, the child was dead, so it did not occasion any unpleasant complications.

In looking up the subject, the speaker said that he found statistics show malformations that occur in about 1 to 35 normal births (harelip and all the minor conditions included). The causes of these malformations are not very well known; in fact merely surmises are thrown out as regards them. The prevailing belief is that malformations are due to an arrest in development along normal lines. What brings about this arrest of development is not certain; the occurrence of defective condition of the parental germ cells is a matter of assumption, as is the influence of heredity, in which case malformations are found in succeeding linear generations. Defective nutrition may have its influence, as do mechanical, physico-chemical and maternal influences—the latter, however, working only indirectly by inducing changes in nutrition.

The speaker said that it might be of interest to mention that as late as the time of Ambrose Paré, the occurrence of fetal monstrosities was ascribed to supernatural influences, divine power, unholy spirits, witches, and even to "coitus cum diabolo," or even with the lower animals.

SPECIMEN: HYDATIDIFORM MOLE (CYSTIC DEGENERATION OF CHORIONIC VILLI).

Dr. G. L. Buist, presenting this specimen, gave the following history of the patient:

Mrs. D., Italian, married, mother of several children. Last pregnancy, a living child nine years old. She is now 48 years of age. Husband living.

She was referred to the reporter of the case for an operation for an abdominal tumor, which, at the time of entrance to the hospital, was apparently the cause of vomiting and pain referred to the lower half of the abdomen. Temp., 100°; pulse, 80. Patient had been regular in her menstruation until three months ago. Had not menstruated since that time.

Without going into the negative findings, an examination showed a tumor in the lower part of the abdomen, freely movable, rising from the pelvis, and corresponding in size to about a five months' pregnancy. By bimanual examination was found a hard, non-patulous, cervix, and some tenderness in the posterior fornix. The whole mass was continuous with the cervix. Ballotement was absent. The tumor could be freely moved. Breast secretions were absent.

The diagnosis of probable fibroid, with mild degree of peritonitis, was made, after carefully considering the possibility of pregnancy or cyst with twisted peddicle. Pregnancy was considered improbable for the following reasons: Patient, 48 years of age; last child nine years old. Breast secretions absent. Last menstruation three months ago, and a tumor corresponding in size to a five or six months pregnancy. There was a hard cervix and ballotement was absent.

Laparotomy showed a tumor that felt and looked so much like a pregnant uterus that the speaker did not feel justified in removing it. The abdominal wound was closed, and the patient put to bed. The possibility of a soft, fibroid uterus was considered. It was decided to observe the patient for (a) developing pregnancy, (b) a miscarriage due to the effect of the operation, (c) a fibromyxoma remaining about the same size for several weeks or months and thereby justifying at a later date an abdominal hysterectomy.

For five days the patient had continued pain and a moderate amount of fever. There was a slight amount of greenish vaginal discharge. On the sixth day after the operation there was considerable hemorrhage, and for the first time the characteristic cysts were detected, having appeared in the blood clots. The uterus was then emptied and the patient made an uneventful recovery.

The patient, Dr. Buist said, was three months pregnant, and had a uterus corresponding to a five months gestation. That, he said, was a possible characteristic diagnostic feature in these cases. The enlargement of the uterus occurs rapidly. The condition is due to a degeneration of the chorionic villi, and the prognosis is that about 18 per cent. of them die. In this case there was little trouble in clearing out the uterus. In curetting, the speaker stated, that we are urged to be careful about the wall of the uterus, in that very often the cystic degeneration extends into the body wall of the uterus and we are apt to perforate. Peritonitis following perforation is one of the chief causes of death. The frequency of occurrence of these cases is about one in 20,000.

SPECIMENS OF URINE: HAEMATOPORPHYRINURIA.

Dr. Millicent B. Hopkins stated that this specimen of urine was interesting on account of its extreme rarity, being a case of hematoporphyrinuria, that is, a derivate of hemoglobin without any iron in it. It occurs, she said, in persons sometimes who have Addison's disease, cirrhosis of the liver or rheumatism. It is fairly common and quite diagnostic in persons who have taken large quantities of sulphonal or trional, and the diagnosis is made only by the presence of bands in the spectrum. The speaker said the specimen she presented had been treated by Dr. F. C. Wood of the College of Physicians and Surgeons, so the diagnosis was sure. The specimen usually has to be treated before the bands are shown in the spectrum, but this one gave the bands immediately. Upon being exposed it oxidizes very readily. The speaker exhibited a specimen of urine from the same patient, which had become oxidized, and it was of a less reddish color.

Sometimes, Dr. Hopkins said, hematoporphyrinuria will occur in persons who have paroxysmal hemoglobinuria. In these patients there is no cause for it.

In this case the patient is a middle aged woman, who has a chronic nephritis and a tubercular process in her lungs, and occasionally she has a lighting up of her kidney trouble with the passage of urine containing hematoporphyrin for several days.

SPECIMEN: CAST OF INTESTINE IN A CASE OF MUCOUS ENTERITIS.

Dr. Millicent B. Hopkins stated that this was a case of membranous enteritis, or, more properly, mucous enteritis. The patient was a middle-aged Irish woman, who had been operated on for carcinoma of the breast. A cast of the intestine was fairly well shown. The patient was a very intelligent woman and brought the specimen into an East Side Clinic. She was of a neurotic tendency, and the condition disappeared very readily with a pill of assafoedita.

BOOK REVIEWS.

Diseases of the Nose and Throat. (The Medical Epitome Series). By J. Bruce Ferguson, M.D., Instructor in Diseases of the Nose and Throat in the Post-graduate Medical School and Hospital, New York. Series edited by Victor Cox Petersen, A.M., M.D., Lecturer in Surgery at the New York Polyclinic Medical School and Hospital; Genito-Urinary Surgeon to the Outpatient Departments of the New York and Hudson Street Hospitals; Anesthetist to the Roosevelt Hospital. Lea Bros & Co., Philadelphia and New York.

This is a small volume of the Medical Epitome Series, edited by Victor C. Petersen, and presents in a precise and practical form, the diagnosis and treatment of the various diseases ordinarily found in the nose and throat. The book gives the fundamental particulars of nose and throat work in a short treatise, and is simply useful as a reference book to the general practitioner who wishes to become familiar with the chief points in the diagnosis of treatment of diseases of these organs. It is lacking in pathology and anatomy, which detracts from its value as a text-book, but these are necessarily absent in such a reference-book.

Psychology Applied to Medicine: Introductory Studies. By David W. Wells, M.D. Lecturer on Mental Physiology, and Assistant in Ophthalmology, Boston University Medical School; Ophthalmic Surgeon, Massachusetts Homeopathic Hospital, Boston; Oculist, Newton (Mass.) Hospital. Illustrated, nearly 200 pages, with Bibliography and Index. Philadelphia, F. A. Davis Company.

On the one hand the mystical heights of the debatable ground of mental science, on the other the more familiar land of practical medicine, this well-written essay aims to bridge the gulf and bring the two realms into closer and more satisfactory relations. Psychology is now admittedly the means of solving many practical problems presented to the physician, and the matter herein presented, which is the result of several years' experience lecturing to medical students, is an attempt to present only a few well-recognized facts which bear directly on the subjects of physiology and hygiene. As the author states in his preface, "The great subject of mental healing in its various forms is a living issue which every physician has to meet," and that while the profession has been engrossed with the physical side, it has not given sufficient attention to the psychic side, although at present is evident an increased interest in psychology, even extending to the establishment in a few medical schools of chairs of psychotherapeutics. In this book considerable space has been devoted to the psychology of sight; three chapters sum up the essentials of hypnotism; reason and instinct, habit, impulses, "unconscious cerebration," suggestion, all have their share of sensible consideration, while the concluding chapter treats of the "psychic element in the practice of medicine, it being well known to be present in all forms of therapeutics, even to surgery, refraction, electrotherapy and massage"; and he advocates the acceptance by the profession of psychology as "an ally, instead of allowing it 'to go about seeking whom it may devour.'"

Frances B. Powers.

The Nursling—The Feeding and Hygiene of Premature and Full-Term Infants, by Pierre Budin, translated by William J. Maloney, M.B., Ch.B. Imperial Publishing Company, New York. 1907.

This work of 200 pages consists of a series of ten lectures on the above subjects. They are based upon an experience of nearly twenty-five years in the special study and care of infants and their preservation. The first four of these lectures are devoted to the congenitally feeble infant. Professor Budin has made a special study of this class of babies, and has done pediatrists a great service in emphasizing the importance of conserving the heat of new-born infants, and of systematic, scientific feeding of such weaklings. His statements are clear, concise, and all illustrated by cases from the Clinique Tarnier.

But the most interesting part of the book is the author's method of feeding. He almost invariably begins with undiluted cow's milk, sterilized at 110° C. (230 degrees F.), and claims to succeed well with it. He begins with a smaller quantity than he believes to be sufficient and gradually increases it until the normal gain in weight is secured. He states that "*undiluted-milk dyspepsia is unknown*" to him, which is a surprise to most pediatrists in this country. Another point of very great interest is the author's description of the workings of his *Consultations for Nurslings,* first instituted in 1892.

He states that from 1892 to 1899, of 435 infants who attended his *consultations,* he had had but one case of fatal diarrhea, and a general mortality of 7.3 per cent. His results are remarkable, and should be confirmed by similar experiments here in America. The book is well worth a perusal by every one interested in reducing the death rate among infants, especially in hot weather.

E. H. Bartley.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania; Fellow of the American Academy of Medicine, etc. Containing the pronunciation and definition of all the principal terms used in medicine and the kindred sciences, along with over 60 extensive tables. Fifth edition, revised and enlarged. Philadelphia and London, W. B. Saunders & Company, 1907.

We presume that many of our readers are familiar with one of the earlier editions of this most excellent and convenient pocket dictionary, and we are glad to see that the increasing demand for it has brought out another edition. Its editor hopes by repeated revisions and improvements that the dictionary will meet still more fully the needs of students and physicians. The volume is daintily bound in crimson limp leather; gilt-edged; good quality of thin paper; and the print, though small, is very clear and distinct. For its size, the selection of words is complete, the definitions adequate, while the tabulated form of much of the information, in re muscles, nerves, etc., is very convenient. There is also a table of weights and measures, including those of the metric system, and a table of doses in both systems, with explanatory note.

Intestines and Stomach, Technic of Operations Upon. By Alfred H. Gould, M.D., of Boston, with 190 illustrations. W. B. Saunders Company, Philadelphia and London, 1906.

A careful perusal of this book fails to disclose any statements to which reasonable exception can be taken. This book deals with the study of the gastro-intestinal operative technic. The experimental work includes that done by Harrington, Nichols, F. T. Murphy, Barbat and Marks, in addition to the original research work of the author.

The object of this study was to simplify gastro-intestinal technic. This question is logically and consecutively treated of in its various aspects, beginning with the reparatory process as it takes place after anastamoses by suture or by mechanical appliance. Next the study of suture materials and the technic of their use is discussed. The anatomy of the different operations of the gastro-intestinal tract is discussed, and finally the different operations on the stomach and intestine are carefully described.

Throughout, the work is profusely and excellently illustrated, and is in fact a master-piece of book-making as well as a most praiseworthy study and trustworthy guide.

R. S. Fowler.

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TUBERCULOSIS OF THE CERVICAL LYMPH GLANDS.

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PART II.

Pathology.

The pathology of the disease is that of tuberculosis in any part of the body. The tubercle bacilli having gained access to a gland, first cause a hyperplasia of the fixed connective tissue cells, which leads to the formation of epithelial-like protoplasmic cells, the so-called epithelioid cells; by the hyperplastic development of cells the connective tissue stroma is pushed more and more to one side, and even to some extent obliterated. These exuberantly growing cells have for the most part but one or two nuclei, but usually cells containing several or many nuclei appear; these are the so-called giant cells. The aggregation of large cells when it has reached the summit of its development, may become somewhat sharply marked off from the surrounding tissue by a thick crowding together of the cells lying at the periphery, and is then named a tubercle.

Despite the extraordinary exuberance of cell growth which affects the cells of the vessel walls as well as the neighboring connective tissue, a new formation of capillaries does not occur. Sooner or later an emigration of white corpuscles takes place; these are apt to be found most numerous at the periphery, but a general infiltration of the nodule may occur; a serous exudation is usually combined with the emigration of cells, and fibrin may be deposited in the nodule itself. Arrived at the summit of its development, the tubercle forms a small, gray, translucent nodule, which may attain the size of a millet seed, and enclose more or less numerous tubercle bacilli within and between its cells. When it has attained a certain size, retrograde changes usually appear in the center, in consequence of which the cells die out; first the small, then the large lose their nuclei, and the cells undergo a hyaline or fatty degeneration; the tubercle then loses its gray translucent character, and becomes opaque and yellowish white, a change which is called caseation of the tubercle.

In some cases the tubercles may be scattered through the gland, appearing as minute grayish or yellowish dots; in others, a cut section of a gland appears not unlike a boiled potato, an appearance which is due to a diffuse caseation of the gland. Sooner or later, softening and disintegration of the caseated nodules ordinarily occurs, and the gland becomes changed into an abscess cavity, filled with pus and with the débris of the crumbled and disintegrated tissue. The wall of the abscess cavity is the thickened capsule, lined by granulation tissue derived partly from glandular remains, and partly from the capsule itself; in course of time this is apt to give way, and the tuberculous pus burrows around in the neighboring connective tissue, or is discharged externally; in the latter case sinuses being formed which are healed with difficulty, and which are often complicated by tubercular ulceration of the neighboring skin. (Pathology. Ziegler 13, Gaylord and Aschoff 14.)

Symptomatology.

The symptomatology of tubercular glands of the neck depends upon the acuteness of the infection and the stage of the disease. Sometimes without discoverable cause, but more often after some acute infection, the glands of the neck begin to swell; the enlargement of the glands may be rapid at first, in which case they are apt to be tender or even slightly painful, but, as a rule, the enlargement is slow and painless. The glands form hard, rounded or oval masses, freely movable beneath the skin, unless there has been some periglandular inflammation in which case they are more or less fixed and matted together. Older patients speedily notice the "kernels" in the neck, but as they enlarge very slowly and give no pain, it is often difficult to convince their unfortunate possessors, that the condition is serious; frequently such patients do not present themselves until suppuration has occurred. In acute cases several different groups may become involved at about the same time, and caseation and suppuration speedily follow. In addition to the rapidly enlarging glands in the neck, symptoms of systemic poisoning appear. In the more common form, the glands enlarge slowly for months. The enlargement may be continuous, or intermittent; or the enlargement may decrease for a time and then reappear. In course of time, one or more glands break down, the overlying skin becomes red and painful, and finally the abscess discharges externally, a discharging sinus persisting indefinitely; after a time it may heal spontaneously, and remain healed, but more commonly it reopens at intervals, or perhaps new sinuses form. In the course of months or years, the disease may become arrested, the glands cease suppurating and return more or less closely to their normal size, the sinuses heal, leaving ugly wrinkled and depressed scars; the patient may remain well, or at some future time the process begin again. In many cases the disease is more or less steadily progressive; one gland after another and one group after another is attacked, until nearly all the glands in the neck may become involved, and under such circumstances other tubercular foci are apt to become established in various parts of the body. Finally, a miliary tuberculosis or an intercurrent infection is apt to close the scene. In many cases the progress of the disease is very slow, and it may be years before the final outcome; in others, the glands may enlarge so rapidly as to simulate other infections.

The systemic symptoms may be well marked or they may be absent. In a case where but few glands are involved, and the infection is very chronic, the patient may be unconscious of any change in his general health, but usually the symptoms of tuberculosis are present; the patient loses weight; he does not feel ambitious nor able to work; he soon tires. There is often a little afternoon fever and a poor appetite; the pulse rate is increased in frequency; the glands in the neck may be comparatively small, and may be quite overlooked as the source of the trouble. Such patients are sometimes treated for malaria, etc., until a marked enlargement of the glands draws attention to the source of the symptoms, or until a tubercular infection of some other part makes itself manifest. How far these general symptoms are due to the localized glandular process, and how far to a lesion of some other part may be open to question, but since they frequently occur in the presence of tuberculous glands in the neck when other foci of infection cannot be discovered, and improve with the improvement of the local condition, it appears probable that absorption from the tubercular glands alone is sufficient to give rise to the symptoms. On the other hand, it must not be forgotten how often tubercular glands of the neck are associated with other forms of tubercular infection, and where the general symptoms are at all well marked, we should always suspect some complicating lesion in the lungs or elsewhere.

Diagnosis.

The diagnosis of tubercular glands of the neck is usually very simple, but occasionally other conditions simulate it, and diagnosis becomes difficult. Most acute infections of the scalp and naso-pharynx may be followed by moderate swelling of the glands of the upper cervical groups, and occasionally suppuration supervenes. I had recently under my care a patient, in whom a neglected fracture of the ramus of the jaw was followed by necrosis, and the formation of an enormous abscess, involving the parotid and submaxillary lymphatic glands, and the upper deep cervical glands; but in such cases the process is more rapid and painful than is the case with tuberculous infection, and there are all the symptoms of an acute septic process. As a general rule, the glands after reaching a moderate enlargement return to their normal size after the primary infection has passed. A beginning Hodgkin's disease, where only one group of cervical glands is involved, may be indistinguishable from a beginning tubercular involvement, and in making a probable diagnosis the following points need to be considered: Tuberculosis is vastly more common, and usually affects children; Hodgkin's disease is rare and usually attacks young adults, males three times as often as females. In tuberculosis the glands are apt to be welded together and after a time suppurate, a feature rarely seen in Hodgkin's disease, except when the glands have reached a very large size. In tuberculosis the upper cervical nodes are usually the first to enlarge, whereas in Hodgkin's disease the first enlargement usually attacks the lower glands; in Hodgkin's disease, furthermore, one group of glands after another tends to become enlarged throughout the body, which is not true of cervical adenitis. But there is a variety of generalized tubercular adenitis which cannot be differentiated from Hodgkin's disease, in fact, the two often occur associated, if they are not identical (15 19). Furthermore, there is an acute tubercular adenitis of the neck, producing enormous enlargement, and associated with chills and fever, which at first cannot be distinguished from Hodgkins' disease; the later course determines the diagnosis. Microscopic examination is not always conclusive. Syphilitic enlargement of the glands of the neck is associated with other evidences of syphilis, and as a rule presents no difficulty in diagnosis; when, however, the two diseases are associated, as is not uncommon, one or the other will almost certainly be overlooked, depending on which complexus of symptoms is the most prominent. Sarcomata of the cervical lymph glands are fairly common; they are evidenced by smooth, moderately hard, rapidly growing tumors, which show a tendency to infiltrate the neighboring tissues and form metastases. Carcinomata of the cervical glands are always secondary (25, 26) tumors, but primary carcinoma of the neck may originate from aberrant epithelial cells, or from misplaced thyroid cells; they present hard, irregular, rapidly growing, infiltrating tumors, which show a tendency to break down and ulcerate. In obscure cases, an examination of the opsonic index, as advocated by Wright, may be of service. He and assistants have shown that in healthy individuals, the opsonis index varies between .8 and 1, 2; whereas in cases afflicted with tuberculosis, the index usually varies from 1, 2 to 2, or from .8 to .2; that is, either too high or too low, depending upon the resistance being offered by the organism (25, 26).

Other tumors of the neck are very numerous, but lack of time forbids my mentioning them in detail. Fibromata usually originate from the ligamentum nuchae, or the fibrous tissue of the spinous and transverse processes. Lipomata may be found in any part of the neck, but most commonly in the nape. Enchondromata and osteomata are rare; they form very hard, circumscribed tumors. Neuromata are very rare. In addition to the lymphosarcomata, already mentioned, sarcomata occur which have their origin from the vessel walls and from the fascia; their course is essentially the same as the lymphosarcomata. The carotid gland is occasionally the seat of sarcomatous degeneration, but the tumor grows slowly and might easily be mistaken for a tuberculous gland; it occurs, however, in middle life, and after a time presents the evidence of a malignant growth. Cysts of the neck occur in different forms; along the line of the branchial clefts, "branchial cysts," dermoid cysts, cystic degeneration of aberrant thyroid lobules, and thyroglossal cysts; furthermore, cystic lymphangiomata, angiomata, and blood cysts may be mentioned. These have so little in common with enlarged tubercular glands, that a mistake in diagnosis would hardly be possible. Echinococcus cysts occasionally occur in the neck, and are recognized by their characteristic thrill, and the discovery of the hooklets in the cystic fluid. (Osler, Tillman, Star, 16, 17, 18).

Prognosis.

The prognosis depends upon so many different factors, and differs so greatly under different conditions, that it is impossible to give any statistics which can be regarded as entirely satisfactory. Grober states that 75 per cent. of cases of tuberculous glands of neck develop tuberculosis of the lungs if not operated upon; this may be true of advanced cases seeking hospital care, but it is undoubtedly far too high for the average run of cases. Demmé (20) in reviewing the first twenty years' work of the Jenner Children's Hospital at Berne, gives the following results from 692 patients with lymph node tuberculosis, who were treated by constitutional measures, not by surgery "21 per cent. developed tuberculosis of the lungs; and 9.2 per cent. developed tuberculosis of the intestines, pia mater, kidneys and epididymis." These records make no mention of bone infections, nor do they tell of the lymph nodes themselves; and, as the observation period in many instances had been short, they do not even tell the ultimate extent of the infection in the internal organs. They do, however, indidicate that such infection was very frequent. Fischer (21) has tabulated from the literature the reports of 1273 cases, one to sixteen years after operation, as follows: "Cured 57.65 per cent.; local recurrences, 21.84 per cent.; died, almost entirely from tuberculosis, 13.51 per cent." Wohlgemuth (22) reports 127 cases divided as follows: "No operation; cured 11, improved, 17, unimproved 18; incision and curetting; cured 23, improved 10, unimproved 3; extirpation, cured 32, improved 10, unimproved 3." In other words, all methods included, 51.5 per cent. were cured, 29.5 per cent. were improved, and 19 per cent. were unimproved. Extirpation gave far the best results, 70.5 per cent. cured.

Dowd, (23) from whom the preceding statistics are quoted, reports the results of operative treatment on 82 patients, two to ten years after operation; of these 14 were over twenty, and 68 under twenty. Of the adults, one had a recurrence of the enlarged glands on the other side of the neck, and subsequently developed phthisis; another developed tuberculosis of the bones of the cranium; four developed recurrent nodes, one of which was apparently only simple hyperplasia; and eight were apparently cured. Of the children, four had recurrent nodes, only one of which was probably tuberculous; six had had secondary operations but are now apparently well; three have lupus, one has a tubercular coxitis, one died of tuberculosis of the spine; and 53 are apparently well. In other words 57 per cent. of the adults, and 78 per cent. of the children appear to have been cured by primary operation; 12.2 per cent. had recurrent tubercular nodes, and but 8.5 per cent. developed other forms of tuberculosis. This is very much better than the statistics of various German authors quoted by Robertson (10), which report from ten to twenty-five per cent. of tubercular lung infections following operation.

The trend of modern surgery is toward the belief that radical operations afford the best prognosis for a permanent cure; but to this there are certain necessary qualifications. If there is a tubercular focus in the tonsil, it is useless to expect a radical cure by extirpating some of the neighboring glands; on the contrary, this is very apt to be followed by infection of the next group of glands not removed, or result in the development of tuberculosis in some more distant part. We have already seen that the infection is usually air-borne, and many of the so-called recurrences, especially on the opposite side of the neck, must be regarded as primary infections rather than extensions of the original disease. The removal of glands on one side of the neck does not prevent those on the other side from becoming primarily affected, and hence the prognosis depends not only on the treatment but also on the hygienic conditions under which the patient subsequently lives. Furthermore, the prognosis depends to a considerable extent on the treatment employed. In many cases surgery is indispensable to remove the original focus and the degenerated glands, but in all cases proper medical and hygienic measures should be employed to assist the body to resist the disease, and the best results are obtained by a judicious selection or combination of methods. In a patient susceptible to tuberculosis and exposed to tuberculosis, it is just as illogical to suppose that the removal of the tuberculous glands in the neck will be followed by a cure, and an immunity to tuberculosis, as it is to suppose that tonics and massage will restore tuberculous glands to normal when these have undergone caseation, and abscesses have formed; both may be possible, but neither need be expected.

Treatment.

If we suppose the normal resisting power of the human body to the growth of the tubercle bacilli as represented by 100, and the ability of the bacilli to grow in the human body be likewise represented by 100, it is evident that, under such conditions, if the bacilli gain access to any part, they will neither be able to grow nor will the body be able to destroy them, for the power of attack and the power of resistance exactly neutralize each other; this sometimes occurs, and the bacilli remain within the body, awaiting a favorable opportunity to grow. Where the resistance is normal, however, the resisting power of the body is considerably greater than the attacking power of the bacilli, and these are soon killed off before noticeable anatomical changes occur. Under certain conditions, however, the relative virulence of the bacilli may be increased, or the resisting power of the tissues diminished, so that the bacilli effect a lodgment and begin their destructive work. To combat their pernicious activity we have three possible methods of attack: first, increase the bodily resistance to such a point that the tubercle bacilli can no longer grow and eventually die out; second, diminish the virulence of the bacilli below the vital resistance of the tissues, no matter how far subnormal this may be; third, remove the bacilli, en masse, or the greater part of them. It is the failure to recognize and to pay proper attention to each of these three factors, which is accountable for much of the failure and disappointment encountered in the treatment of all forms of tuberculosis. Unfortunately, the third method of attack is not available in the majority of cases of tuberculosis, but in tuberculous glands it affords us invaluable service.

It lies outside the scope of this paper to go into details concerning the operative removal of the glands of the neck. For this I would refer to any text-book on surgery, or to Dowd's (23) article on the subject. But in this connection there are three points which I desire to emphasize: First, before any operation is attempted, a careful examination of the throat should be made, and any local lesion properly treated; especially should local tubercular foci be sought for and exterminated: Second, the transverse incisions, introduced by Kocher, should be preferred, as they usually give sufficient room to operate and result in less conspicuous scars; Third, operation should be regarded only as the beginning and not the end of treatment.

Every case of tuberculous glands of the neck is a form of tuberculosis and, by virtue of its presence, proves that the patient has either been unduly exposed, or is unduly sensitive to infection by the tubercle bacilli. Furthermore, if the disease has existed for a length of time, some of the bacilli have probably passed through the glands into the general circulation, and are prepared to set up tubercular infections in other parts of the body if favorable opportunity occurs. Hence, any rational treatment of tubercular glands, must not only include the removal of the degenerated glands, but also the upbuilding of the general resistance and the diminishing of the virulence of the bacilli. As to the necessity of upbuilding the general resistance of the organism to the attack of the bacilli, you are all doubtless agreed; this includes the ordinary dietetic, hygienic and tonic treatment familiar to us all. Increase of nutrition is the basic principle in the treatment of tuberculosis. As to the possibility of diminishing the virulence of the bacilli in the tissues, there is considerable difference of opinion. It is precisely here that ideas have undergone the greatest modifications within the past few years, and where they are still undergoing modification.

We have seen the attempt made to kill the bacilli in the tissues without regard to the effect of the medicine on the general nutrition; and we have seen all drugs discarded and reliance placed solely on the recuperative power of nature when placed under proper hygienic conditions. There are many who tell us that no drug can be administered in sufficient quantity to materially affect the bacilli in the blood, and that most of them are so enclosed in the tissues as to be unsusceptible to any medication. Others on the contrary believe that the growth of the bacilli can be materially modified by drugs. Which theory is correct?

It is a fact of common experience that a person may live in a deleterious atmosphere, and suffer from chronic poisoning of a very serious nature, without there being any gross changes in the air of which chemistry is able to take cognizance. I had recently under my care a patient who had been given up to die by several doctors, and it required several months for me to cure him. The house was slightly damp and had a musty smell, that was all; but it was sufficient to cause very marked chronic poisoning. Changes of a few degrees in temperature greatly modify the growth of bacteria; almost infinitesimal changes in a culture media may render the growth of bacteria therein impossible, if it does not destroy them entirely. By suitable modifications, bacteriologists are able to increase or decrease the virulence of bacteria at will. It is, therefore, not a priori improbable, that drugs which in concentrated form destroy bacteria, may even in infinitesimal quantities diminish their virulence. Whether they do or not is a matter to be determined by observation and experience.

Personally, I believe they do. Why I so believe may be illustrated by the following case on which I operated in April, 1905:

American woman, aged 40; had a cough and had been losing flesh for about two years. Last three months discomfort in region of rectum, and for past few weeks had pain and discharge from this region; for weeks had eaten but little, and nearly every time food was taken had a diarrhœal movement of the bowels; for the past week, chills and fever; marked night sweats; considerable cough, but little expectoration. Both apices affected, on the right, dullness and râles extending into the axilla. In the sputa were tubercle bacilli and caseous material. Ischio-rectal abscess, size of fist. Patient nauseated and septic. Normal weight about 120; present weight, 100; temperature, 103; pulse, 104. Here, certainly, was a case from which little could be hoped in the way of improvement.

The abscess was opened and the patient treated for tuberculosis. At the end of a week, the patient's color began to turn, and the temperature ceased to go above 100 in the afternoon; at the end of the fifth week the appetite was ravenous, and patient now eats and digests more than any other member of the household. At the end of the sixth week the temperature no longer went above 99; pulse about 84; allowed to sit up in bed. At the end of the seventh week, patient allowed to go around the house; temperature rarely goes above 98.6 and never above 99. End of eighth week, patient able to go out and take short trolley rides; weight increased 12 pounds since operation. End of twelfth week, no cough, slight expectoration, no bacilli, physical signs of tuberculosis disappeared; abscess healed; temperature normal; weight, 114; feels and looks perfectly well. Six months later she suffered from a very acute attack of dysentery, lasting ten days, but there was no evidence of tubercular trouble. June, 1906, patient says she has never been so well in years; weight, 127.

This case was treated on the lines indicated; local, to the local condition; general tonic, and upbuilding; and lastly and not least important, the patient was kept saturated with creosote, so administered that it promoted increased nutrition.

It is not necessary that the drugs administered should kill the bacilli in order to exert a profound influence on the course of the disease. Reverting to our former simile, if the virulence of the bacilli is 100, and the resisting power of the body has sunk to eighty, the course of the disease must be comparatively rapid; it may be impossible to raise the resisting power to 100, but if we can diminish the virulence of the bacilli to 80, the active process will come to an end because the powers of attack and resistance are once more bananced, and every increase in the resisting power of the body above the point of equilibrium increases the rapidity of repair. The great mistake which is commonly made in attempting to follow this line of medication is the administration of drugs which may decrease the virulence of the bacilli, but which at the same time diminish the vital resistance of the patient to as great a degree, and the last state of that patient is worse than the first.

Theoretically, creosote is indicated in all forms of tuberculosis. It kills tubercle bacilli in vitro, and even in very weak solutions inhibits their growth when exposed for long periods of time; taken internally, it circulates in the blood and is excreted by the lungs and the kidneys.

One-thirteenth of the body weight is blood. In a person weighing 65 kilograms (143 lbs.) 5 kilograms (11 lbs.) are blood; therefore one gram of creosote circulating in the blood of an individual of this weight would make a one-to-five-thousand solution; not enough to kill the bacilli, but certainly enough to diminish their vitality and materially interfere with growth, and clinical experience in thousands of cases has shown that creosote, even in small doses, exerts a favorable effect on the course of the disease. The one insuperable objection to creosote, in most cases, is the fact that but few persons can take sufficient to prove of material benefit without so disordering the digestive system as to more than counterbalance any possible good which might otherwise result from its use. To some of the newer compounds of creosote this objection does not apply. Creosotal contains 92 per cent. of creosote; and I have taken and given 60 minims daily for weeks at a time, without observing any ill-effect; it is rapidly absorbed and excreted within a few hours. In twenty minim doses, three times a day, the blood probably contains a one-to-five to one-to-ten-thousand solution of creosote practically all the time; a dilution which is probably too great to materially influence the bacilli when exposed for a short time, but which, when prolonged for weeks, most certainly exerts a very profound effect in checking the further growth of the bacilli and in favoring the process of repair. Whether this is due to a toxic action of the creosote on the bacilli themselves, or only to the neutralization of their toxins, is immaterial to the present discussion. If creosote carbonate, in combination with other therapeutic measures, will cause the tubercle bacilli to disappear from the sputa, and the physical signs disappear from the chest, it is immaterial to the doctor and patient just the physiological chemistry of the process. Many patients cannot take more than 60 minims per day, and for a person of medium weight, this is probably sufficient when the drug is administered for some time. At intervals of a week or two it is advisable to reduce the dose for a few days, or to change to one of the similar preparations; it is always poor policy to give the same drug in the same form indefinitely, for both patient and doctor become tired of it, and if the stomach will not tolerate the larger doses, it may be necessary to give smaller doses for a time, or to change the method of administering it. It is a matter of experience to determine, in each particular case, whether the daily dose should be divided into three, four, or six portions; this depends largely on the state of the digestion and the frequency of taking food; and many patients cannot take creosote on an empty stomach. If the urine becomes smoky, it is a signal that the limit of tolerance has been exceeded, and the dose must be reduced, at least for a time.

In treating all tubercular patients, the utmost attention must be paid to the digestion and assimilation of sufficient food, and this even in patients who are apparently taking a normal amount. "In tuberculosis, the work of the organism is vastly increased in combating the disease, and the loss of nitrogenous elements commonly exceeds their assimilation, unless special attention is paid to nutrition (27)." So much is this the case, that we now have a school of medication, which relies very largely on overfeeding to bring about a restoration to health (28, 29). Easily digested food should be eaten, especially such as contains a minimum of extractives and a maximum of fat. Pepsin and hydrochloric acid are frequently an aid to gastric digestion; intestinal indigestion is usually controlled by the creosotæ alone, in combination with proper diet. Various tonics, arsenic, strychnia, quinine, etc., alone or in combination, promote absorption and assimilation. Heart tonics are often indicated to control the frequency of the pulse. Heroin is probably the best drug to control the cough and promote sleep. Rest is very important in the treatment of tuberculosis, especially when the fever passes 100 in the afternoon, or when the patient complains of weakness and lack of endurance, or is not gaining in weight.

Wright (26) has achieved some success in the treatment of tuberculosis by the injection of tuberculin, but this is yet in an experimental stage, and can only be carried out by experts in large and well-equipped sanitariums.

In addition to the removal of the glands, there is one other form of local treatment which sometimes has a pronounced effect; iodoform can be absorbed through the unbroken skin, and be taken up by the neighboring glands, and in cases where these are but moderately enlarged and breaking down has not occurred, the continued inunction of iodoform vasogen, in conjunction with other therapeutic measures, will often obviate the necessity for operation. And even where operation is necessary, I believe that as soon as the operative wound is healed, the neighboring lymphatics should be impregnated with iodoform in order to check the growth of any stray bacilli, which may be located therein. In cases of suppuration, where extirpation of the glands is not allowed, and where the surgeon must content himself with incision and drainage, the same general line of medication should be followed, but in addition it becomes necessary to attempt to heal the local abscess. I doubt whether any one drug will accomplish this, but by a judicious alternation and combination of potassium permanganate, bichloride, phenol, iodoform, ichthyol and balsam of Peru, the abscesses can usually be cured and even the enlargement of the glands be made to disappear.

As illustrating these different lines of treatment, allow me to present briefly, the history of three cases.

CASE I. Young lady in good circumstances and in good general health. Enormously enlarged tonsils and adenoids; enlarged glands on one side of neck, which had been noticed for a few months, and were increasing in size. The tonsils and adenoids were removed by my father, Dr. J. A. Blake, while I was in Europe, and the patient was referred to one of the best-known surgeons in the city for removal of the glands. He advised immediate operation, but owing to circumstances this was postponed to a more convenient season, nothing more being done for a number of months, during which time the glands increased slightly in size. Iodoform vasogen was then recommended by my father to be used twice daily until the glands should be operated upon, but the time for this never arrived; for in the course of a few months the glands returned to normal and have so remained for the past couple of years. It is highly improbable that any local treatment would have cured the glands, without the previous removal of the infecting foci, and it may well be doubted if the infected glands would have returned to normal after the removal of the original foci, without some form of local treatment, for during the five or six months that no treatment was employed, the glands increased in size, and only after local medication was continued for months did they disappear.

CASE II. Man, aged about 25; fine physique. Mattress-maker, and engaged in making-over old mattresses. Had a moderate attack of grip, which was quickly followed by enlargement of the upper group of the external carotid chain and of the axillary glands of the left side, and of the supraclavicular glands on the right side; the glands increased in size so rapidly that the diagnosis was at first uncertain. Cough and afternoon fever developed, and he lost about forty pounds. I desired to operate, but had to content myself with opening the abscesses and attempting to restore his general health; at the end of three months, the abscesses were cured. In the axilla a couple of glands the size of marbles could still be distinguished; in the neck the glands had returned almost to their normal size; the cough had disappeared, and the patient had regained more than twenty pounds in weight, felt well and was working very hard. A couple of months later he was still well, but working too hard for his own good, and had stopped gaining in weight. His subsequent history I do not know.

CASE III. This case was operated upon by me too recently to judge of final results, but it illustrates certain features so well that I have included it with the others. Patient, woman, aged 34. In 1891, at the age of 19, the glands on one side of the neck enlarged following a heavy cold; after a few months the glands decreased in size, but never returned to normal, and for nine years remained about the same, but would enlarge if the patient felt indisposed. In 1900 they enlarged and became red and painful. Patient rubbed in salve and soreness disappeared. In 1902 the glands enlarged again, and an abscess formed which was opened; after several weeks abscess healed. This was repeated in 1903. During the next three years the glands gave no trouble. They were about the size of marbles under the skin. In August, 1906, patient began to feel run down and miserable; the glands in the neck had not enlarged appreciably, but the patient had a constant afternoon fever and was losing weight. For several months the patient was treated with tonics and antimalarial remedies, without result; then operation was advised, and a mass of cheesy glands removed from the superior carotid triangle. The wound healed by primary intention, and a few days after the operation the temperature dropped to normal: the patient felt better than she had felt before for months. She was advised to remain under supervision, and is being treated for incipient tuberculosis along the lines indicated. I have no doubt that she will continue to improve in health and remain free from any further evidences of the disease.

(Note.—Two months after operation, patient's temperature has remained normal since a week after operation, except during an intercurrent attack of influenza lasting ten days; gain in weight nearly five pounds; during past week gained one pound.)

In conclusion I wish to emphasize the following points: Tuberculosis is tuberculosis, no matter where found or under what conditions. Tubercular glands in the neck are simply one form of tuberculosis, and are apt to be followed by, if they are not complicated with, other forms of tuberculosis. The occurrence of tuberculous glands in a patient marks that patient as particularly liable to tuberculosis in any form, and the treatment of tubercular glands in the neck is the treatment of incipient tuberculosis, plus the treatment of the local condition.

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THE TREATMENT OF ANOMALOUS PELVIC DEVELOPMENT IN THE FEMALE, WITH REPORT OF CASES.

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In looking over the gynecological reports of hospital, as well as private, practice, one would almost be forgiven if he arrived at the conclusion that all gynecologic diseases were due either to indiscretion upon the part of the patient or her medical attendant.

Pelvic infection, whether cellular, tubular or ovarian, together with the injuries of childbirth and their sequences, not only usurp the greater part of the gynecological surgeon's time and ingenuity in the operating room, but also claim the greater length of attention in their writings. That Nature sometimes fails, however, in the stage of evolution is well recognized, and that this failure may involve the female pelvic organs is well attested by the number of young women who are daily seeking relief. The majority of these failures are during the so-called period of secondary development, when the organs are preparing to take on their normal functional activity, but a certain proportion occur during primary evolution—during the life in utero—and, with your permission, we will present some cases that have come to our notice during the past few years.

ANATOMY. The Fallopian tubes, uterus and vagina are developed from two bodies known as Müller's filaments, which make their appearance during the early weeks of gestation. These club-shaped filaments approximate at their lower extremities, coalesce for about two-thirds of their length and become tubular. The septum which extends up the entire length of coalescence is obliterated, leaving one cavity instead of two. This cavity becomes the vagina and uterus, and the upper clubbed ends become fimbriated and form the Fallopian tubes. Later in gestation, the upper tubular portion increases in thickness, and the division of uterus and vagina becomes more marked. The ovaries are formed from the genital glands, and the external genitals from the genital tubercles.

Arrest of development at different stages of evolution will give the malformations that are met with in practice.

In the first place there may be an atresia of the vagina; that atresia may be complete or partial, and may be situated at the introitus (imperforate hymen), or between the introitus and cervix; again, the septum may not have been obliterated, and a double vagina is the result; or, again, these filaments may have remained solid, and instead of a patulous vagina, there is simply a solid cord between the bladder and rectum (absence of vagina).

Again, the uterus may be the seat of the deformity, and depending upon the development of the ducts separately, the failure of absorption of the septum, or partial coalescence, etc., one of the many deformities may result.

SYMPTOMATOLOGY. The question of symptomatology and treatment in these different conditions is varied. During the period of childhood no symptoms are manifest; when puberty is reached and the organs commence their functional activity, the symptoms begin, and their severity depends upon the degree of deformity. Of course, in the complete atresias of the vagina, with functionating uterus and ovaries, the pain and absence of menstruation are the predominant symptoms, and the usual menstrual molimen, with increasing pain at each period and absence of flow, is presumptive evidence of vaginal obstruction. This condition may go on for months until, as in one case we will enumerate to-night, the retained flow was sufficient to make a tumor visible through the abdominal wall. If the obstruction is but partial, the scantiness and prolonged duration of the flow, with the passage of dark, grumous, offensive material are the characteristic symptoms.

If there is a malformation of the uterus itself with normal ovaries, then we have all the pain attendant upon an organ attempting a function for which it is improperly fitted; colic, tenesmus, backache, pain in the groins, headache, etc., at first coming before and during the flow; later, on account of the pelvic congestion, continuing for days after the flow has ceased.

TREATMENT consists all the way from a simple incision of a thin membrane up to a pan-hysterectomy, depending upon the degree of deformity, the symptoms and their severity.

In the cases where the uterus and ovaries are healthy and functionating and the obstruction is due to an imperforate hymen, all that is necessary is the removal of the obstructing membrane and the washing out of the retained fluid, if any is present, and the prevention of annular contraction;

in these cases it has been our custom to incise the hymen fully and close the raw surfaces with continuous catgut sutures. In the cases where these patients are married, and dyspareunia, due to narrowed introitus, is the symptom demanding relief, satisfactory result is obtained by incision of the introitus posteriorly, and the closure of the incised surface by suture of the mucous membrane and skin; i. e., making a posterior incision, putting it upon the stretch and suturing at right angles to the incision.

In those cases of imperforate hymen where large quantities of menstrual fluid are retained in the vagina, and finally in the uterine cavity itself, with bulging vagina, and even tumor reaching half-way to the umbilicus, there has been some difference of opinion as to free incision and thorough irrigation, or a simple small incision to permit of drainage, and later the complete operation. Our experience has led to the belief that free incision and thorough and careful irrigation, with antiseptic fluid, is safe and satisfactory, and that is our custom.

Some cases present themselves in which the external genitals are apparently normal, but the obstruction is situated between the introitus and cervix; the treatment is similar to the cases considered, except that more care must be exercised to prevent contraction. The cases that have come to our notice were those in which the diaphragm was incomplete, and it was incised laterally and anteriorly and then manually dilated. We found no necessity for glass tubes or tents, but relied entirely upon iodoform gauze, well lubricated, and in column of sufficient size to keep the cut edges upon the stretch during healing; the column being removed and replaced, as required.

Cases of double vagina, or vagina with a septum, do not give symptoms, and are usually discovered, either accidentally during examination for other cause, or during labor. The vagina with a septum may offer obstruction to delivery, as in the case reported below, and there is nothing to do but make an incision parallel to the vagina, and suture if hemorrhage is sufficient to warrant it, otherwise incision is all that is required.

Aside from these cases, which are not only readily relieved of their symptoms but rendered sexually active, there are cases in which relief at the expense of mutilation is all that science can offer. In the cases of so-called absence of vagina and uterus, where the ovaries are comparatively normal, menstruation does not occur, but all the nervous phenomena, with marked severity, recur regularly and drive the patient to seek relief at the hands of the surgeon. Ovariotomy is all that he can offer. Or the cases of normal vagina with malformed uterus, for instance, as in Case VIII, where the uterus was bicornate, and nothing short of hysterectomy gave the girl relief.

Some cases of deformity are discovered accidentally, as in Case X, where, during operation for inflamed ovarian cyst, the congenital absence of ovary and tube was found.

A few cases taken from the Gynecological Department of St. Peter's Hospital and private practice may exemplify what has been said:

Case I.—E. E., aged 28, single, born in United States. Menstruation began at 16 years, recurring every 28 days, lasting for seven days, though scanty, painful and offensive. In general appearance patient was poorly nourished and highly neurotic. Examination revealed a small introitus, the vagina being closed by the so-called cribriform hymen, in which the two or three openings were so small as to admit hardly an ordinary uterine sound. Bimanual rectal touch revealed a uterus and appendages apparently normal, and pressure against the anterior rectal wall caused the discharge of dark, offensive material from the vagina.

Diagnosis: Obstruction of vaginal orifice.

Treatment suggested and accepted, and under ether anesthesia, which is the anesthesia used in all our cases, the hymen was freely incised, permitting the escape of an ounce or two of offensive fluid. The vagina was thoroughly irrigated with bichloride of mercury, 1 to 5000, under low pressure, followed by sterile water.

Bimanual examination confirmed the normal condition of uterus and ovaries, and the patient made an uneventful and complete recovery.

CASE II.—Represents the class of cases of partial atresia, due to rigidity of hymen and consequent dyspareunia.

Mrs. S., married two years. Menses began at 18, regular, but scanty and painful. Intercourse impossible on account of pain. Patient well nourished and healthy. Examination showed the narrowed and hyperæsthetic introitus. Vaginal examination being impossible, bimanual rectal investigation was resorted to, and showed a well-developed uterus and ovaries.

Treatment. Under anesthesia, the posterior commissure was incised, in the median line, for about one inch, and the mucous membrane of the vagina was sutured to the skin with catgut interrupted sutures, closing the cut surface. Recovery was without drawback, and eleven months later the lady was delivered of a nine-pounds male child, without difficulty, and without laceration sufficient to require suture. The child was well developed but hypospadic.

CASE III.—Miss L., aged 14, came to us complaining of severe periodical attacks of pain. The pain recurred monthly, with all the evidences of menstruation, without the flow, and of increasing severity. Of late there had been an appreciable increase in the size of the abdomen.

The family druggist having exhausted his stock of remedies and not having cured her amenorrhea, she consulted her family physician, who referred her to St. Peter's Hospital. Examination showed a well-developed young girl, of ruddy complexion, and apparently in perfect health. A well-defined tumor extended half way to the umbilicus, and a bulging membrane completely closing the vaginal entrance, told the story of an imperforate hymen, with retained menstrual fluid. The following morning this membrane was incised laterally and antero-posteriorly, and 48 ounces of fluid were evacuated. Thorough irrigation with weak creolin solution, a suturing of the incised surfaces with running catgut completed the operation, and four weeks later the young girl left the hospital perfectly well, having menstruated normally and painlessly in the interim.

CASE IV.—M. B., 15 years of age, was sent to us on April 16, 1906, with the following history: At 11 years of age patient had severe attack of diphtheria, and menstruated slightly at that time. She did not again menstruate until June, 1895, then in September and January, 1896; the flow was scanty and always preceded and accompanied by severe pain. The young lady sought relief for the irregular and scanty menstruation, but especially for the severe abdominal pain.

Examination revealed a practically imperforate hymen with retained fluid. There was a small orifice sufficient to admit a small probe, but only discernible by causing the menstrual fluid to exude by rectal pressure.

Operation, April 17, 1896. Patient being anæsthetized, a free incision was made with the cautery, and thirty ounces of fluid evacuated. The usual irrigation with mild antiseptic fluid and rest in bed for ten days completed the treatment, and in three weeks the patient returned to her home.

CASE V.—In the cases cited the stenosis has been at the introitus. It is possible to have a vaginal stenosis, partial or complete, in which the introitus is practically normal.

M. C., 27 years of age, sought relief for dysmenorrhea, and because of a dark, grumous, offensive vaginal discharge. Examination by vagina revealed a rather rigid hymen, and midway between the introitus and cervix, a diaphragm, apparently completely occluding the vagina; the uterus was made out beyond the obstruction, and by bimanual rectal touch was found to be small and antiflexed. Ocular examination by means of a Syms speculum revealed an opening in the obstructing membrane close to the anterior vaginal wall.

The patient accepted the proposed line of treatment, and under ether anæsthesia the obstructing membrane was freely incised from wall to wall antero-posteriorly and laterally; it proved to be very dense, but not vascular. Beyond it was found quite a collection of menstrual fluid, which was removed by irrigation with a two per cent. creolin solution.

The question was considered of how to best deal with the remnants of the diaphragm, and prevent cicatricial contraction, and we resolved to insert in the vagina a column of iodoform gauze, well lubricated with sterile vaseline, and of sufficient size to keep the healing surfaces thoroughly stretched; this dressing was permitted to remain a week, and was replaced under chloroform anæsthesia with a strip of gauze well lubricated. The patient was discharged cured on July 19, 1899. She has since married, and was successfully delivered at term without complication.

CASE VI.—M. McD., aged 38, foreign birth, married two years; had never been pregnant. Menses began at 18, recurred every 28 days regularly, continued three days scantily and without pain. Three weeks previously, six weeks having elapsed since her last menstruation, patient began to flow, with severe crampy pain; this flow continued, with pain of varying severity, up to the time she was first seen, May 10, 1899, and patient supposed she was miscarrying.

She was well nourished, though excessively nervous, and certainly not under 38 years of age; temperature 101 degrees, pulse 130. Vaginal examinations showed a dark, fetid discharge scantily exuding from the upper vagina, which was walled off at about its upper third by a thin, bulging membrane. Pressure upon this caused the material to exude more rapidly. Absence of all signs of pregnancy led to the diagnosis of retained menstrual fluid, and the patient was removed to the hospital on May 14, 1899. Two days later the obstructing membrane was broken up by means of a uterine dilator and then manual dilatation. About three ounces of fluid were liberated. The vagina was thoroughly cleansed by prolonged creolin irrigation, and examination of the uterus, under the anæsthesia, verified the absence of utero-gestation. The patient's recovery was rapid, and on May 30, 1899, she left the hospital. She has never become pregnant, and the contraction has been very slight.

Case VII.—That a double vagina, or vagina with a septum, will escape notice until examination for other causes reveals it, is well shown in the following case:

Mrs. B., age 30, married, and of regular menstrual habits, was first seen during labor with her first child. Labor progressed satisfactorily up to complete cervical dilatation, when further progress was impeded by a dense membrane extending from the introitus to the cervix and dividing the vagina into two distinct cavities—failure of absorption of septum of Müller's coalescence.

Treatment evidently required division of the band, which was promptly accomplished with blunt scissors, and labor terminated instrumentally. The membrane was very dense but not vascular, and no hemorrhage being present, it was decided suturing was unnecessary, and patient convalesced satisfactorily. There was no further trouble, and consequent pregnancy and labor were normal.

Case VIII.—M. A., born in Sweden, 28 years of age, maried two years. Had never menstruated nor had coitus been possible. She knew she was unlike other women, and came to the hospital to see if anything could be done for her.

Examination showed a small depression between the rectum and the urethra, and bimanual rectal touch a rudimentary uterus and vagina, but apparently healthy ovaries. Anæsthesia confirmed the diagnosis. The patient's only suffering being mental, and the prospects of making a satisfactory artificial vagina being very remote, she was discharged with advice to return if pain became a factor. One year later she returned for relief of severe backache, occipital headache and pain in both ovarian regions.

Laparotomy was done and showed there had been no attempt at coalescence of Müller's ducts; instead of uterus or vagina, there was simply a cord leading from one ovary to the other. Double ovariotomy was performed, and three weeks later patient left the hospital free from pain. She remained well for six months; since then we have not heard from her.

Case IX.—M. W., U. S., 23, single, menses began at 16, recurred regularly every 28 days, for six days, profusely and painfully. She came for menorrhagia, dysmenorrhea and pain in both ovarian regions and back, sharp and lancinating in character, and of increasing severity.

Diagnosis of chronic salpingo-oöphoritis was made and laparotomy advised. Three days later the abdomen was opened and both ovaries were found chronically inflamed and conservative operation was done on both; a right-sided hydrosalpinx was removed, and a Dudley operation upon the left tube done. The uterus was found to be duplex. The appendix was normal and not removed.

The patient was discharged in three weeks, but six months later she returned with all symptoms aggravated, except that she did not flow so profusely. Vaginal hysterectomy was done. The patient made a perfect recovery, has remained well, and is in better health to-day than she has ever known.

Case X.—Shows a medical curiosity rather than a case giving symptoms and requiring treatment.

Mrs. W., 37 years, U. S., married ten years, the mother of four children, the youngest two years, had one miscarriage ten months ago; had been ill for one month when seen.

The usual symptoms of inflamed cyst and the presence of a mass in the abdomen, tender and fluctuating, made a diagnosis comparatively easy. Laparotomy was done and tube and ovary were removed. Exploration of the other side for further trouble revealed the absence of ovary and tube; a small blind tube, about half an inch in length, extending from the uterine cornu, was Nature's attempt at ovary and tube. The convalescence was uneventful.

INTRODUCTION TO STUDY OF MECHANO-THERAPEUTICS.

By LEFFERTS A. McCLELLAND, M.D.

THE rapid physical deterioration experienced by the race as it is removed from the rural to the urban residence cultivates new limitations in the habits of physical exercise both physiological and mechanical. This disuse of the bony, muscular, ligamentous, circulatory and respiratory, as well as other systems, tends toward those atrophies and degenerations necessarily consequent thereon. The man who, sitting at his desk in the counting room with his feet from the floor for hours each day for many years of his life, reaches the same ultimate condition of atrophy of his leg muscles as does the scholar who from his youth has given great heed to his omnivorous hunger for information requiring him to relegate physical development to the limbo of the far-gone years of his boyhood days when he seldom found pleasure in the physical prowess so common among his fellows. "Function makes structure," if not *per se,* at least indirectly. It has been shown that the bones of men, and of horses, doing laborious work, have a heavier quality and denser structure than those whose activities are of a lighter sort. The primal duties of those who engage either in the reclamation of the physical perfection to which our race is justly entitled, or to the correction of defects resulting from pathologic changes, require not only a reasonable knowledge of the fundamental laws governing the principles of muscular physiology, but a great familiarity with the well-known methods for the development of needy cases whose very essence of comfortable and useful being is dependent on the proper coordination of the physical and psychic departments of the body. The heart, that vital structure, seldom fails in its supply of fluid for the needy and thirsty tissues save when it is put out of commission completely, yet there are times when the *vis a tergo* is totally inadequate to the needs of the system, and such deficiency may be due to insufficiency of muscular development which too often is treated, either through ignorance or lethargy, with the time-worn persistency and sameness of method which was adopted before our time, when digitalis and its allies afforded the *sine qua non* of therapeutic practice for all affections of the heart, irregardless of the true pathologic needs. Now if those of you, if any are here in this learned society, who still practically ignore the physiologic method of treatment for some such condition as is assumed here, viz., insufficient muscularity of the heart-muscle itself, and who are interested, would attend the common daily performance of any institute for physical culture under competent management, you would soon be convinced of the benefits of intelligent, moderate, well-defined and rational exercises, both physiologic and mechanical, which are used to develop the structural cardiac insufficiency (muscular) of many of the cases wherein graded, easy, relevant muscular exercises are induged in for the gradual development of the muscles in the body either as a whole, or in some of its parts, with the primary purpose in view of the strengthening of the heart by calling upon its increase in function, and thus we expect an augmentation in structure, for "function makes structure."

Conscious attention to muscular exercise must be encouraged or else our race must degenerate, for by evolutionary stages we have gone on developing the neuro-muscular powers which have co-ordinated and adapted themselves to environment, until now we are dependent on that standard which requires considerable physical exercise to induce those metabolic phenomena upon which tissue changes so largely depend. Without sufficient exercise a condition of general atrophy of the neuro-muscular system prevails, and instead of the well developed and resilient lungs so willing to expand and contract as the occasion demands and the nervous system orders, we find an insufficient filling of the air cells, a feeling of incompetency to voluntarily inhale a deep breath, or exhale with any degree of force. The voluntary muscle will not respond to our commands, and the involuntary cannot, for the muscular striæ have diminished in size and numbers and they are atrophied perhaps beyond repair if the inertness be continued too long. The popular, but artificial, life consequent on urbanizing the hordes whose natural proclivities should make the rustic life so dear to them, is fast producing a change in the neuro-muscular development acquired after centuries of evolution, and the balance between the nervous and muscular systems is fast being lost. By nature, the child is actively engaged all day long in one form of exercise or another that the muscular system may not lose its proportionate balance with the nervous system. The demands of education and culture in a short while, when the child is yet little beyond the stage of infancy, require attendance upon school duties with the maximum use of the mind and the minimum of the body. Henceforth this child is to be deprived of the normal requirements for its proper physical growth and development, so that the nervous element will be increased at the expense of the muscular. The baneful influences of such a result in maldevelopment cannot be questioned, and it behooves us, as guardians of the health of the community and nation, to become interested in the general question of how are we best going to supply that exercise which is essential to normal physical neuro-muscular balance. It is evident that the new social order has been so arranged that no proper provision is made to substitute for the old and natural order of exercise, such as some of our ancestors used to follow when engaged in fighting vigorously for their clans, swinging their shillalies with their brawny arms, greatly to the consternation of their adversaries, or while reaping with the scythe, swaying their bodies to and fro, or in digging the ground, or felling trees, or doing other useful, honorable and healthful work.

On the contrary, even walking to deliver messages or reach short distances has become unnecessary.

Physical education (which consists in systematic and intelligent exercises especially capable of supplying the high degree of physical proficiency, thus creating a fine physique) and mechano-therapy are two methods especially capable of supplying the needs of different systems with well graded and useful exercise, the latter applicable as a remedial method and capable of a variety of applications from massage, passive motions, resisting movements, etc., etc. Peter Henry Ling, the Swede, collaborated the ancient methods of the Chinese, Hindoostanese, Grecians and Romans, who had acquired much skill in the matter of physical upbuilding, and to these he added plans of his own which enabled him to create a system bearing the name of the Swedish movements. In this country Dr. S. Weir Mitchell popularized this system of treatment, and his therapeutical results in many rebellious diseases are too well known to require even a hint. However, mechano-therapy and rest, assisted by diet, as practiced in the University of Pennsylvania according to his plan, has proved a boon to this method. The details of method to be practiced in the varying conditions requiring such treatment I leave to those whose papers follow mine.

HEALTHFUL EXERCISE VERSUS THERAPEUTIC EXERCISES.

By WILLIAM S. HUBBARD, M. D.

IN presenting a subject of so general a character, my only claim upon your attention must be that the end of the vacation season brings us pleasing tales of a summer spent in delightful out-of-door pursuits in the country; days spent among the pleasures which were dear to us in our youth, which awaken in the mind a longing for the continuance of the playtime of life, and a long postponement of the stern duties of the work hours of a vigorous mental and nervous existence.

There are no startling scientific data to present, and whatever may be said will seem but a repetition of the most homely and commonplace truths such as any one who gives the subject the shortest consideration will readily admit.

Healthful exercise — the activity of the healthful individual, child or man, following the impulses of a sound mind in an equally sound and energetic body. Such activity as is well illustrated in the growing boy, whose cares are nil, and whose only thought is to have a good time; who delights in his bodily strength, and whose rank is determined as much by physical endurance as by the variety of his muscular attainments; whose activity is limited by healthy physical fatigue rather than by the exhaustion of an irritable and overwrought nervous system.

Therapeutic exercises — for the purposes of our present discussion these may be defined as formal movements and manipulations prescribed to build up weakened tissues; to restore, if possible and as far as may be, structures weakened by disuse, misuse or disease.

The one—natural, wholesome and protective in character; the other—artificial, remedial and irksome in character. The infant, an activity in his crib, or the romping boy, running and tumbling on the lawn, as against the thin, neurotic woman, lazily undergoing the treatment of a masseuse, or a flabby and corpulent broker, submitting to the gymnastic course of a faddish physical culture specialist. This is, of course, to compare extremes—the healthy, with those whose health is impaired; but in that it seems to me the main proposition lies.

Is it not far easier to retain good health than to obtain it when all impaired? And is it not the duty of us, physicians, to encourage regular, definite, physical exercise as a protector of good health, quite as much if not more than to outline courses of exercise for those who are below par in physical vigor? Has not the exercise cure a place in our thoughts as well as the rest cure? Might not the needed rest cure, in many instances, be forestalled by attention to proper regular exercise?

It will readily appear that the boy or girl in school or college who devotes a reasonable time every day to regular physical exercise, the participation in games and sports of pleasing character, stands well in the class and grows to a manhood or womanhood of greater worth to the community than the bookworm and the prig. No one cares for the physique of a clothes-horse, or the stature of the man whose frame must be held erect by Dr. So-and-So's patent body-brace!

But you will say that the growing youth requires exercise, and takes it in answer to perfectly natural impulses, while the adult does not need the same exercise, and therefore does not take it. This is only true in part; the adult does not need as much exercise, and by reason of the many cares of later life he finds it difficult to take the time for exercise which he may be willing to admit that he does need.

Once the departure is made from the former habit of frequent physical sport and exercise, the other habit of no exercise at all is soon contracted, and the summer vacation is practically the only time in the year when the average man or woman feels able to live a normal physical existence—free again to enjoy the walks and games of early care-free life.

Life in the country is more easily accustomed to physical exertion and fatigue, and perhaps for most of those who dwell in smaller communities and lead simpler lives there is plenty of the exercise which a healthy body needs. But in the city it is different; the rush and hurry to make time and to save it, to keep engagements and to make money, are so urgent that one easily neglects health and strength, save to exhaust both in the mad intensity of competition. Here then is an opportunity for sensible advice and thoughtful urging of attention to the simplest possible kind of cure for many of the ills of irritable workers.

The forms of exercise which should be encouraged are various, and may easily be suited to the diverse tastes of the individual. It is impossible in city life to prescribe the kinds of exercise which come, in the country, in the nature of employment, but certain forms may always be advised. Walking is one of the best and most healthful forms of bodily exercise; bicycling, which was so much of a craze a few years ago, is a really good sport and exercise, and its place cannot be taken by any other so simple and inexpensive; swimming and rowing are not so easy to secure, but are admirable. The whole lot of out-of-door games and many simple in-door exercises may be thought of.

It is not possible in all cases to regulate the time in the course of a business day to have much leisure for games or sports, but it is always possible to take the setting-up exercises or some similar home gymnastics.

The plea is for more consideration of exercise as a means of retaining the health, thereby securing the useful services of a greater number of the community.

It is not necessary to go into all the ills of the flesh which will soon vanish under the benign and salutary action of bodily exercise—a chapter might be easily written on this subject.

In conclusion, let me urge the adoption of the continuous exercise treatment for the purpose of retaining a sound state of health.

1138 Bergen Street.

EZEKIEL SKINNER, M.D.

A SHORT HISTORY OF HIS LIFE

By B. D. SKINNER, M.D.,

GREENPORT, L. I.

EZEKIEL SKINNER, the only child of Ezekiel and Mary Skinner, was born in Glastenbury, Conn., on the 27th of June, 1777. His mother died when he was five years old, and his father when he was ten. Being thus early left an orphan, he was consigned to the care of his uncle, Benjamin Skinner, who resided at Marlborough, Conn., and when he had reached a suitable age, was apprenticed to the trade of a blacksmith. Here he labored diligently with his hands, but his vigorous mind was also at work in higher departments of knowledge, and without any assistance he had very soon gone through an extended course of arithmetic.

Having resolved on a different course of life from that to which his trade would have destined him, he bought the last year of his apprenticeship, and spent it in attending school. He then commenced the study of medicine, under the direction of Doctor, afterwards Governor, Peters, of Hebron, Conn., where he remained three years. At the end of this time, notwithstanding his poverty, he obtained the means for going to Philadelphia, to complete his medical studies under Dr. Rush and his illustrious associates, in the medical institution of that city.

Mr. Skinner received his license to practice medicine in 1801, and, on the 22d of November of that year, was married to Sarah, daughter of Nathaniel and Agnes Mott, a native of Chatham, Conn. His first settlement as a physician was at Granville, Mass. From here he removed to Lebanon, in the same state. From Lebanon Dr. Skinner removed to Stafford, Conn., and, while engaged there in the practice of medicine, began to preach, and was licensed in 1819 by the Baptist Church, in that place, under the pastoral care of the Rev. Benjamin M. Hill. His preaching proved highly acceptable; and in 1822 he was ordained to the pastoral care of the Baptist Church in Ashford, Conn., where he officiated nine years, and also pastor of the Baptist Church in Westford, where he officiated seventeen years, including a period of four years which was spent in the service of the Colonization Society. He continued his medical practice in connection with his duties as a minister.

Dr. Skinner was well known in Greenport and vicinity where he practiced medicine in connection with his son, or in his son's absence, more or less from 1828 to 1834. On June 21, 1834, Dr. Skinner sailed for Liberia, as Physician to the Colony. He returned to the United States in March, 1835, attended a public meeting in Richmond, Va., also one in New York City on May 15th, speaking in behalf of African Missions. On July 11th, 1835, he sailed again for Liberia, with an appointment as temporary Governor of the Colony.

He was very much interested in botany, and many specimens collected in Africa are now in possession of his grandson, Dr. B. D. Skinner, as is also his ticket for Dr. Rush's lectures dated November, 1800.

Many anecdotes are related of him. The following is an extract from a letter of the Rev. R. R. Gurley: "Dr. Skinner being a student of medicine under the celebrated Dr. Rush, he naturally imbibed many of his opinions, and for the cure of many, if not most diseases, relied mainly upon calomel and the lancet. Predisposed from his youth to consumption, and afflicted repeatedly by hemorrhage of the lungs, he reduced by the lancet the arterial action, and engaged in habitual labor, cultivating his own farm, and after several hours of labor in the day at home, walking, with his portmanteau on his arm, for long distances, to visit his patients. I think he had been bled, or bled himself, nearly a hundred times before he was sixty years of age."

The Rev. Gurdon Robins writes: "I will state a fact, which, though connected immediately with his medical practice, may throw some light on his general character. Just before information of Dr. Skinner's arrival from Liberia was received in this city, Dr. Silas Fuller called at my bookstore, having just returned from a visit to a patient in a very critical situation at Middletown. Her danger arose from a tumor so intimately connected with a main artery that Dr. Fuller informed me he did not dare attempt its removal; and that he knew but one man in the world whom he could trust to perform the operation, and that was Dr. Ezekiel Skinner. He, said Dr. Fuller, combines both the requisite courage and skill, and if he were here, I doubt not that he might go through the operation successfully, but, unfortunately for this case, he is in Liberia. Dr. Fuller soon left my store, and within about an hour after, Dr. Skinner entered it, having just arrived from Liberia and being then on his way to his home at Ashford. I mentioned the case to Dr. Skinner, and told him what Dr. Fuller had said, whereupon he inquired where the patient lived, and said that he would go and see her at once. He did go that evening, and on his return the next forenoon, informed me that he had performed the operation successfully. I have related this incident as illustrative not only of Dr. Skinner's skill and energy, but especially of his benevolent and self-sacrificing spirit, for, in order to visit this patient, he was obliged to turn aside from his homeward journey and thus delay the meeting with his family, after a protracted absence from them."

Dr. Skinner in 1812, enlisted in the army as a sergeant, but his medical skill being discovered, he was soon transferred to the medical department, which he was compelled to leave on account of his health in a few months. On his final return from Africa in 1837, he continued his labors both as physician and clergyman, in Westford, Conn., although he was totally blind for the last six years of his stay there. In April, 1855, he resigned his charge, removing to Greenport, where he died December 25, 1855, aged 78 years.

Dr. Ezekiel Erasmus Darwin Skinner, a son of Dr. Ezekiel Skinner, the subject of the preceding sketch, was born at Lebanon, Conn., June 27, 1808. He pursued his medical study under the direction of his father and at Bowdoin Medical College, where he graduated in 1828, and the same year came with his father to Greenport. In 1831, he was married in Greenport, to Mary Brown Read, who was also from Ashford Township in Conn., and who at the time was teaching school in Greenport. He died in Greenport, February 17, 1875, aged 67 years, so that for a period of 47 years he practiced medicine in Greenport and vicinity. When he first came to Greenport, there were but three or four houses located there, and much of his practice was in Orient and Shelter Island, and in all there was not sufficient for his support, so that in the early years he performed other labor for remuneration. His fees in the early years of practice were but 25 cents for an ordinary visit, later they were three shillings, and during the civil war rose to 50 cents. He was prominent in the religious, social, and political life of the community, and was pre-eminently a type of the family physician so graphically described in "The Bonnie Briar Bush."

THE PHYSICIAN AND THE AUTOMOBILE.

BY DAVID EDWARD HOAG, M.D.

A very few years ago an article appearing with the above title would have been regarded quite apropos as an opportunity to bring out discussion as to whether the automobile was at all designed to become a popular and useful mode of conveyance for the busy doctor. Nowadays it is quite different. The automobile has been tried and tested and not found wanting, and is deemed by all competent observers as the conveyance par excellence for the physician. The question now most pertinent, and one which is agitating the user and manufacturer alike, is what form of self-propelled vehicle is best designed to meet the uses of the busy man. What shall be its motive power? What are the most essential points to be observed in its construction to provide for the user durability, comfort, comparative ease and safety of handling. Physicians all over the land, city and country alike, are thinking, and thinking seriously, over these very things. It is often a question of great perplexity to an intending purchaser of a motor car, amidst the maze of manufacturers and the convincing arguments set forth by their representatives. The motorists of Long Island, with its vast area of what have been called the finest roads in the world, the birthplace of the Vanderbilt cup races and the much talked of motor parkway, should be able to give much valuable and interesting experience concerning the question previously mentioned. The medical men especially, not only throughout the country part of the island, but in the metropolitan section as well, who have had experience with many varieties and makes of car, should be able to provide a very lively discussion upon the relative merits of their respective cars. It is for this reason partly that this article has been written, to form a sort of open parliament on this question. The Journal of the Medical Association established a precedent when it issued its Automobile number in April, 1906. The Horseless Age also has occasionally issued a "Doctor's Number." This is proof therefore, that the physicians' opinion as to what is required in the automobile for practical use has some weight. Undoubtedly the doctor in general practice wants the car that gets there with the least possible annoyance and adjustment. The consensus of opinion among the doctors contributing to the automobile symposium in the Journal of the A. M. A. seems to be almost unanimously of the solid tire, the high wheel and the air-cooled motor. It must be remembered that the doctors who were thus giving their opinion and experience are scattered all over the United States, under widely varying conditions of roads. It must also be borne in mind that these men were looking at the matter from an intensely practical point of view, so far as their own convenience was concerned, but in many cases their opinions were not based upon a practical scientific basis so far as the intricacies of motor construction is concerned. For instance; in the matter of the air-cooled motor. Although it may be ideal in many ways, it is evidently not regarded as practical by the great majority of manufacturers, or else it would be more universally adopted. A very profitable discussion upon this question of motor cooling, based upon actual experience of users of either system, would certainly be of value to user and manufacturer alike. Common sense, however, would seem to indicate that machinery of any kind would last and wear better when run at a temperature of say, 200 degrees F., than it would at a temperature of 400 degrees F., as is sometimes attained in an air-cooled motor; and when the troublesome pump is eliminated, quite a state of perfection has been reached. When it comes to either the high carriage wheel or the solid tire, the country doctors, especially in the territory west of the Mississippi, are almost unanimously in favor of both. This emphasizes the fact that what the doctor wants is the car that gives him the least possible annoyance without regard to appearance, even comfort being sacrificed sometimes. The reasons given for desiring a high wheel are that the car will be high enough from the ground to prevent the vacuum from sucking up dust into the machinery and to clear obstructions, such as large stones and high-centered roads. This does not seem a good reason, as all machinery, especially when located in the front under the hood, is most thoroughly protected, and nearly all low-base cars are sufficiently high to clear any ordinary obstruction. One doctor sums up his views for solid tires as follows: "While they decrease speed and increase the danger of injury to the machinery, due to jars and shocks (unavoidable on the road), still if driven with care over the roughest of roads this objection would be in a measure overcome, but the freedom from delay on starting on a hurried call, and finding a deflated tire, delay on the road from punctures and blowouts, longer life and the doing away with the actual manual labor of pumping up tires, recommend them over the very unreliable pneumatic tires, for the doctor's use." A comparison of the various motive powers for automobiles might be briefly summed up as follows: The electric cars are quiet, easily controlled, clean, and start without cranking, but they are heavy, due to excessive battery weight. The batteries require much attention and are easily injured. They are practically useless for touring, due to uncertain distance between charging stations. Steam cars are quiet, easily controlled and start without cranking, but the many things to watch and care for, besides the danger of the exposed flame, render it impossible for the operator to do or think of much else. Gasoline engines have the slight disadvantage of starting with a crank, but an operator soon learns to manipulate the starting device and the trouble is forgotten in considering the many advantages gained by using this type of engine. The experiments going on at the present time, in comparing utility of alcohol and kerosene, may revolutionize things in this direction. There is no doubt in my mind that the car for convenience, safety and ease of handling and general management is one that has easy accessibility to all its working parts, its engine in front (under the hood), purposely simple in its construction, double opposed cylinders, shaft-driven, water-cooled, no pump. The simpler the machine, and the fewer the parts, the less is the possibility of trouble. The lighter the weight consistent with strength, the longer will be the life of the machine. The engine should be ten to twelve horsepower; in other words, high power and light weight consistent with safety. The car designed especially for the doctor must be roomy both front and back of seat for satchels, and ride easily. So far as the satisfaction to be obtained in owning and operating a car, much depends upon the personal equation manifested in the care, use and abuse of a car, and in the judgment shown in the primary selection.

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Further information on advertising page 34

THE NATIONAL GUARD FIELD HOSPITAL.

THE State authorities in military affairs are gradually coming to see the importance of the Medical Department of the Army in relation to the efficiency of any fighting body of men. Those who have never been intimately associated with any hospital corps of a regiment in the National Guard, cannot realize how inefficient and almost worthless it has been. Formerly, a position on the hospital corps of any state military organization has been considered a sinecure, and men who had served for a period of years in the Guard were oftentimes assigned to the hospital corps so that they might still be connected with the regiment and yet have no duties to perform. The results of such neglect on the part of the medical officials of the various organizations were very forcibly demonstrated in 1898, when 14 soldiers died from disease to 1 soldier who died from wounds received in action. As a means of comparison, it may be stated that in the Russo-Japanese war, the Japanese lost 1 from disease to 4 dying as the result of injuries received in battle!

All of these facts have greatly impressed themselves upon the military authorities, and a general reorganization of the Medical Department of the National Guard is taking place. One of the first steps has been the organization of a field hospital for the National Guard in New York State; this field hospital is supposed to occupy a position between the fixed division hospital and the hospital corps attached to the regiment or squadron active in the field, and is organized in order to facilitate the movements of troops by caring for those too ill to be moved, by establishing an ambulance service which will receive and care for the men seriously injured, and by providing an intermediary store of supplies for the corps active in the field. The Field Hospital Corps is attached to State Headquarters and is independent of all other state organizations.

At present, the corps is under the direction of Major-Surgeon W. S. Terryberry, formerly of the Twelfth Regiment. The captains and the Assistant Surgeons are William E. Butler, of Brooklyn; G. Morgan Muren, of Brooklyn; and Thomas A. Neill, of New York City. The non-commissioned staff includes six hospital sergeants and eight corporals. Of the privates, there are to be twenty-five mounted privates and twenty-five ambulance men who are to accompany the ambulances; one musician and one cook. This corps drills every Thursday night at the First Battery Armory, New York City.

In point of efficiency, the medical corps in the state. The hospital corps probably leads those of any in the State; the hospital corps of the Thirteenth Regiment, with Major Henry P. de Forest at its head, is probably the largest and best-drilled hospital corps in the State. The hospital corps of Squadron "C" is composed of two surgeons, a captain and first lieutenant; a hospital steward, who is a dentist; a hospital sergeant, who is a pharmacist; two corporals, who are both physicians; and a number of privates most of whom are practicing physicians in the city.

The establishment of the Field Hospital is a distinct step in advance, and under the direction of Major Terryberry it is rapidly becoming an efficient arm of the service.

MEDICAL NEWS.

Vereinigung Alter Deutscher Studenten in Amerika—The members of the German Students Society in America, many of whom are physicians residing in New York and on Long Island, have received the following notice of a banquet to be given at Arion Hall, September 2, 1907.

Vereinigung Alter Deutscher Studenten in Amerika.

"New York, den 24, Juli, 1907.

SEHR GEEHRTER HERR:

Montag Abend, den 2, September, um halb sieben, findet in der Arion Halle das Bankett zu Ehren Sr. Kgl. Hoheit des Prinzen Wilhelm von Schweden, des Enkels unseres Ehrenmitgliedes, des Grossherzogs von Baden, statt. Der Vorstand der Vereinigung Alter Deutscher Studenten in Amerika lädt Sie mit Ihren Freunden zur Betheiligung ein. Theilnehmerkarten sind gegen Einsendung von $5 pro Stück vom Schatzmeister, Herrn Dr. A. J. W. Kern, Jamaica, Long Island, erhältlich."

Brooklyn Surgical Society—The following amendment to the Constitution of the Brooklyn Surgical Society has been adopted:

> "Article III; Section 3. The writer of any paper which is to be presented to the Surgical Society, shall send a full abstract of such paper to the Secretary in order that it may be printed and sent with the notices of the meeting at which the paper is to be read. Also that he shall deposit his manuscript or a full abstract thereof with the Secretary at the time of its presentation."

The idea of this amendment is to furnish each member of the Surgical Society with a full abstract of the paper before the meeting of the Society, in order that those who wish to discuss the subject may have some idea beforehand of the scope of the paper to be read. As a rule, abstracts of papers are almost worthless; they simply give an idea of the main points contained in the paper, in fact, the conclusions without the premises. The original idea of the member of the Society who proposed the amendment was to save time at the meeting by having the paper printed and sent to each member of the Society before the meeting, so that the reading of the paper might be omitted and more time given to a free and comprehensive discussion of the subject. The amendment, as adopted, does not fully accomplish the desired end, and therefore will prove of little use. It is simply another half-way measure which is really a compromise and not a useful amendment.

Impure Milk—It is stated that the Board of Estimate and Apportionment have authorized an appropriation of $350,000 in order to protect the children of the city against an impure milk supply. It is expected that Dr. Darlington, the Commissioner of Health, will be authorized to appoint one hundred milk inspectors at a salary of $1,200 a year, and four supervising inspectors at a larger salary.

TRANSACTIONS

OF THE

BROOKLYN GYNECOLOGICAL SOCIETY

A. A. Hussey, M.D., *Editor.*

TREATMENT OF ANOMALOUS PELVIC DEVELOPMENT, WITH REPORTS OF CASES.

A paper with the above title was read by Joseph F. Todd, M.D., for which see page 330.

DISCUSSION.

Dr. L. G. Baldwin said that these cases are interesting as illustrating pretty nearly all the mistakes in development. Without discussing individual cases he stated that he would like to refer to one point that the doctor brought up, and that was the matter of irrigation. He assumed that it is the practice to evacuate completely retained fluid in imperforate hymen and wash out the uterus and vagina. That certainly had been his custom, and had proven successful in all cases where he had tried it. He believed that the dangers under the present régime of asepsis are practically nil, and certainly the recovery is much better than where the practice is followed of having the fluid drain away slowly. In the latter class of cases it involves, in many of them, a subsequent operation, which is always distressing to the patient, and unpleasant to the attendant to have to propose. In the case reported of a double uterus where a hysterectomy was subsequently done, it would be rather interesting perhaps to go a little more into the details. The pain that the girl suffered from was as extreme as any menstrual pain he had ever witnessed. There was only one cervix, the canal of which communicated with only one horn of the uterus; the canal of the other horn of the uterus had no connection with the cervical canal.

In addition to the cases reported he would like, he said, to add another of double vagina where it was the cause of sterility, where a septum had grown over and completely occluded the cervix, practically like a curtain drawn over the cervix. This was incised and the patient became pregnant very soon and aborted at six weeks, and since that time she has had four or five miscarriages at six weeks. There are still some scars in the vagina, and the uterus apparently does not rise as easily as it should. Whether the scars in the vagina are the cause of the miscarriages he was unable to say. At the present time the woman is about two months pregnant, and he was in hopes she would continue so.

Dr. H. C. Keenan said that his experience with the class of cases that Dr. Todd narrated had not been very extensive, probably confined to five or six. He stated that he would like to speak of a class of cases of nondevelopment, which the doctor did not see fit to mention, but which he no doubt had seen numerous instances of, and that was the infantile and the pubescent types of uteri.

In an article which he read a short time ago by Hegar, he pleads for a better diagnosis in this class of cases; he would distinguish between the infantile and the pubescent types; the infantile being divided into two classes. The infantile type is due to a lack of development from fetal life; the uterus presents certain well-defined characteristics, the cervix being twice as long as the body of the uterus. This is as it is in fetal life and in early infancy, and when the development of the uterus should take place at puberty, owing to certain causes, this development does not take place, so that in adult life the uterus still shows this fetal type. A number of cases are reported of this type, and they all show the same characteristics.

In the pubescent type, the relative size of the cervix and the body is normal, but the uterus is smaller than it should be. In the fetal type the lack of development is due to some cause occurring in fetal life; the pubescent type is usually due to some illness occurring about the time of puberty and causing a lack of development of the uterus at this time.

There is, the speaker said, a very practical point in this differentiation as regards the treatment. In the pubescent type, due to irrigations of hot water and stimulations of electricity or other means, the uterus may be caused to take on a renewed development and approach the adult type, while but little can be expected in the purely infantile type.

With regard to the malformations of the uterus, as described by Dr. Todd, he stated that he had read an interesting case a short time ago; a case of pregnancy occurring in one horn of the uterus, in which the decidua was cast off about the fourth month of pregnancy. This, he understood was the only case in the literature. The woman gave all the signs of pregnancy, and at the fourth month she was seized with bleeding which lasted for eight or ten days. The patient was put to bed, kept quiet, and after six or seven days the flow stopped. Two weeks later the flow came on again, and then a distinct decidual cast of the uterus was thrown off. The possibility of a mistake in diagnosis in a case of this kind was, of course, very great.

With regard to the transverse septum of the vagina which is occasionally met with, as far as he knew he only came across one instance that seemed to date back to infantile or fetal life. Several cases that he had met with in the Vanderbilt Clinic gave a history of inflammation at some period, either diphtheritic or gonorrheal, and in those cases he found a transverse septum in the vagina which shut off considerably the menstrual flow. In no case did he have a complete septum; on one or the other side there was an opening.

In regard to the tenderness of the vagina causing dyspareunia, these cases usually come to the hospital shortly after miscarriage complaining of dyspareunia, and they are treated practically as Dr. Todd had mentioned. The thickened tender hymen is incised, and usually the vagina is well packed with gauze plentifully smeared with vaseline.

Dr. Charles Jewett said that stenosis of the vagina is most frequently acquired. In a case he saw at labor with the late Dr. Byrne, only a finger could be passed through the opening. In that case the doctor delivered by multiple incisions of the septum, and forceps. The lesion was attributed to diphtheria of the vagina, which occurred after the preceding labor; whether true diphtheria or not he did not know.

Another case, which was a remarkable instance of the kind, was one in which a physician was called to attend a case of abortion, after delivery, and attempted to wash out with a douche. He filled the bag with water, then dropped in carbolic acid; the carbolic went in first, and left a burn which resulted in stricture. This case was operated upon by the late Dr. Skene. No permanent improvement was obtained. When seen later by Dr. Jewett it was not possible to introduce even the little finger through the opening. Trouble arose from locking up of discharges above the occlusion. He contented himself with dilating and draining as often as stenosis recurred. The speaker did not believe that a gauze plug would prevent recontraction; it is next to impossible to prevent it.

Dr. W. E. Butler said that he wanted to report a case of absence of the genital organs. The patient, woman of 28 years, was married ten years and lived with her husband about three months. She came to him last autumn. On examination he found the external genitals practically normal; the vagina extended up about one and one-half inches and ended simply in a pouch of tissue dilatable to about two inches in breadth. Examination through the rectum disclosed apparently a small nodular body above the end of the pouch, but he could feel no ovaries. She was divorced from her first husband and contemplated remarrying, and wished to have it determined whether an operation would benefit her in any way; in other words, whether there was a uterus above, and whether there was any opportunity of becoming pregnant.

The speaker did not see her again until about three weeks ago. She came to his office, and he told her he would do what he could, and said if there was no uterus above there would be no sense in operating, as she could not become pregnant, but she insisted on having a vagina formed anyway. He sent her to the hospital and did the following operation to lengthen the canal: There were the remains of a hymen, and he made an incision along the skin of the mucocutaneous junction from the level of the urethra, from one side to the other, separating the mucous membrane and pushing it up beyond. Then he took two flaps, one from each thigh, and swung them over, leaving a pedicle for nutrition, and united them to the mucous membrane above and united over this the denuded surface. The flaps adhered pretty well to the denuded surface, except a small portion at the upper angle of the wound, where there was some sloughing; ten days later he had not disconnected them. The result has been fairly satisfactory, as far as the vagina is concerned. As to the ultimate result, of course he did not know.

Dr. J. F. Todd said he had nothing to add except that the cases were all carefully examined for the presence of any inflammatory trouble in the vagina. With the exception of the diphtheria case, there was no history of any inflammatory trouble, and in the diphtheria case the vagina was soft and pliable in all directions, except the septum closing the vagina.

He stated that he had seen the case Dr. Jewett referred to, in which carbolic acid had been injected into the vagina, but that was entirely different from those he was speaking about. In that case the vagina was all scarred; it was readily to be seen there was some etiological factor at work, and not a congenital defect. In all the cases reported by him in which there was a septum, it was simply a band extending across the vagina, and in no way could be an adherent anterior and posterior vaginal wall.

TRANSACTIONS

OF THE

LONG ISLAND MEDICAL SOCIETY.

1. Introduction to Study of Mechano-Therapeutics.

A paper with the above title was read by Dr. Lefferts A. McClelland, for which see page 335.

2. Healthful Exercise versus Therapeutic Exercises.

A paper with the above title was read by Dr. W. S. Hubbard, for which see page 337.

Discussion.

Dr. Truslow—Each of the subjects dealt with to-night has been held largely in the hands of the laity. It is our business to know about these agents, and it is very appropriate for a society of the standing of this one to take up these questions. There is the question of physical exercise. We can look to members of the *American Physical Education Association* and find thoughtful scientific study of these questions; but what are we, as physicians, doing in these lines? What, for instance, do we know about the Physiology of Exercise? The normal schools of physical training are feeling for knowledge of this—are the medical schools? Our knowledge of the effects of exercise on the circulation and respiration is hazy. Some notable work in this line is now being done by one of the assistants in the Department of Physical Training at our public schools, who is making original research on the relation between blood-pressure and blood-rate. He finds in this a specific test for that indefinite condition which the unscientific athletic trainer calls "staleness." Do we not want to use this in determining similar conditions in those we are gymnastically pushing in the correction of their lateral curvatures? Again, we should know more about massage. We certainly should understand the principle of massage and know the difference between the good and the bad. The question of mechanical support is one which interests some of us very much. I would like to emphasize the principle that a brace is a means of holding what some other agent has attained, and not a correcting force in itself. Take bow-legs for instance. The brace retains the best possible present correction, and prevents recurrence of the deformity while the child's bones grow in the right direction. The bands are drawn tighter now and then to hold the increasing correction of normal growth. With the vibrator I have had a little experience. It has this very definite value, that it quickly overcomes that "muscle soreness" which follows the unaccustomed use of muscles. In this way I have used it with decided benefit in beginning exercise treatment with lateral curvature and other patients. I presume its efficiency is due to the elimination of waste products in the tissues; mechanically, the vibrator gets rid of the irritating sarcolactic acid formed by and deposited in long-resting muscles.

As physicians, consulted about school children, we must know what the exercises in the schools are given for and why they vary for different ages. Seeing the necessity for the co-ordinate development of the neuro-muscular system of the children up to the age of puberty, in those grades in the schools, the greater attention is given to those exercises which train the accomplishment of specific motor activities as a result of specific commands of the teacher. At the same time this course recognizes in adolescent boys and girls the greater needs of the hygienic effects of exercise, and this is attained by the freer use of continued rhythmical exercises and dances and games. This sane and normal gymnastics for healthy school children differs materially from those gymnastic exercises which are given for the correction of deformities and the cure of disease; and I like the term gymnastic therapeutics, instead of therapeutic exercises for the latter class, because I wish to see this agency more and more adopted by our profession and less and less by the laity.

Dr. Brush—There is one point brought out about physical exercises, that everything that can do good may do harm. I have seen some bad cases of hysteria in college oarsmen and football players. The over-development of the heart in physical exercises, when carried to too great a point, caused over-distension of the arteries. This is true of men who train severely for some athletic contest and then suddenly stop. They eat too much and have vertigo and become permanently disabled. Exercise is good, and without it we cannot do our best work; it must be watched, however, and should not be carried outside of certain points.

Dr. Cornwall—In view of the fact that the problem in cardiac therapeutics is so often an essentially mechanical one, viz., to train up a weakened heart muscle, it would seem that its solution would be effected most naturally by mechanical methods. That, however, is not so much the case as it would seem, at least not obviously. In the great class of valvular diseases the only formal mechanical method of treatment that is of decided value is the recumbent posture. This, indeed, is of cardinal importance, being the only treatment necessary in mild cases of ruptured compensation, and in severe cases a treatment without which all other therapeutic procedures are futile. In applying this method of treatment, in determining the size of the dose, approximate precision can be reached only after much experience; but a few general principles can be stated which help to guide us. In children, rest in bed can be kept up indefinitely without serious harm, while in elderly people it cannot. It is wise to keep children who have suffered from serious or even moderate rupture of compensation, in bed for weeks or months after all the symptoms of cardiac failure have disappeared. In fact, it is a safe rule to keep them in bed as long as possible, never formally giving permission to get up. If the physician obstinately refuses to let the child get out of bed, no matter how long it has appeared perfectly well, the parents on their own responsibility will be sure to let it up quite soon enough; while if he weakens under the demands of the patient and family, and sets a date for getting up, it is more than likely that this date will be anticipated, and it is not improbable that it will have proved too early after all; and if, as is not at all unlikely, a relapse should occur, there is a practical advantage in being able to shift any blame that may arise to the shoulders of the patient's parents. It will make it easier to keep up discipline the second time.

In elderly people and in chronic myocardial degeneration too long retention in the recumbent position may do harm. It is in these cases that formal exercises of a graduated character, either passive against resistence, or active, such as walking, hill climbing, etc., are very useful. In fatty heart and other myocardial degenerations of elderly people, alkaline effervescent baths seem to have been notably effective, particularly in connection with regulated diet, graduated exercises, and careful hygienic regulations.

Formal exercises can seldom be employed with practical advantage in the treatment of valvular disease after compensation has been established and the patient is up and around, for then the ordinary activities of life affords sufficient physiological stimulation to the heart, and instead of prescribing exercises, the indication is rather to curb the patient's propensity to indulge in them too much.

Massage is of considerable value in the treatment of many forms of heart disease. In endocarditis, both acute and chronic, it may be used to improve the circulation, and also in myocardial degeneration, but care should be taken not to apply it too vigorously.

Among the contraindications to the use of exercise in heart disease may be mentioned atheromatous disease of the aorta, marked arteriosclerosis, or suspected disease of the coronary arteries. Also, it is well for at least six months after recovery from acute endocarditis or ruptured compensation, to prohibit all forms of athletic exercises; and in fact, no person who has a valve lesion, no matter how well compensated, should indulge in athletic exercise more vigorous than walking, horseback riding, or possibly bicycle riding on the level.

Dr. W. L. Ricard read a short paper on Vibration. He said that while it had been much lauded as a therapeutic agent, the manufacturers of the instrument were about the only ones to make claims for it as a cure-all.

The theory on which these claims are based is that all functions and organs of the body are controlled by a nerve or nerve-centre, and that in disease, if these centres are reached and treated, restoration to normal may be expected.

ASSOCIATED PHYSICIANS

OF

LONG ISLAND.

ACTIVE MEMBERS.

BOROUGH OF BROOKLYN, KINGS COUNTY.

A

Addoms, Lewis Paddock	278 Halsey St.
Ager, Louis Curtis	116 Montague St.
Alderton, Henry A	142 Clinton St.
Allan, J. Glen	141 Noble St.
Alleman, Lewis A. W	64 Montague St.
Amador, Martin	187 Park Ave.
Anderson, Samuel F	765 Union St.
Anderson, Lewis Nostrand	526 Bedford Ave.
Anderson, Herbert C	388 Clinton St.
Applegate, William S	931 Flatbush Ave.
Arrowsmith, Hubert	170 Clinton St.
Ayers, Benjamin	213 Jefferson Ave.

B

Bacon, Charles B	109 Cumberland St.
Bailey, Frederick D	260 Hancock St.
Baker, Frank R	540 Bedford Ave.
Baldwin, L. Grant	28 Schermerhorn St.
Barber, Calvin F	57 South Oxford St.
Barber, Vincent	269 Arlington Ave.
Bartley, Elias H	65 South Portland Ave.
Becker, James Parker	1087 Dean St.
Beers, Nathan T	516 Nostrand Ave.
Belcher, William Nathan	69 South Oxford St.
Bell, Alfred	37 Linden St.
Bellows, Charles	433 Nostrand Ave.
Bender, Herman P	683 Bushwick Ave.
Bennett, Edward C	244 Seventy-third St.
Bennett, Franklin	686 Greene Ave.
Benton, Stuart H	720 Nostrand Ave.
Berlenbach, Philip H	9 Stuyvesant Ave.
Bierwirth, Julius C	253 Henry St.
Biggam, William H	1197 Dean St.
Birmingham, Francis Henry	132 Montague St.
Bishop, Ernest S	919 Bedford Ave.
Blackmar, Bruce G	317 Ovington Ave.
Blaisdell, Silas C	500 Bedford Ave.
Blake, J. Eddy	352 Jefferson Ave.
Bodkin, Martin L	255 De Kalb Ave.
Boes, William	200 Graham Ave.

Bogart, J. Bion	463 Clinton Ave.
Bogart, Arthur H	135 Seventh Ave.
Brader, William B	1198 Bushwick Ave.
Braislin, William C	556 Washington Ave.
Brinsmade, William B	117 Montague St.
Bristow, Algernon T	234 Clinton St.
Brown, Frank E	591 Hancock St.
Browning, William	54 Lefferts Pl.
Brush, Arthur C	29 South Portland Ave.
Bryn, Harold	313 Union St.
Buckley, Charles F	802 Carroll St.
Buist, George L., Jr	3 Hancock St.
Burnett, Peter V	170 Keap St.
Butler, Glentworth R	229 Gates Ave.
Butler, William E	113 Halsey St.
Byrne, John B., Jr	224a Sixth Ave.

C

Campbell, William Francis	86 Greene Ave.
Carey, John J	287 Hoyt St.
Catlin, Arnold Wells	207 Greene Ave.
Chapman, William L	19 Lafayette Ave.
Chase, Carroll	936 St. Marks Ave.
Chase, Walter B	936 St. Marks Ave.
Clark, Frank H	758 Putnam Ave.
Clark, Raymond	310 Clinton Ave.
Clayland, John M	152 Hewes St.
Collins, Burnett C	645 St. Marks Ave.
Colton, Frederick H	136 Montague St.
Corcoran, Walter	233a Clinton St.
Cornwall, Edward E	1239 Pacific St.
Costello, Patrick Vincent	195 Euclid Ave.
Alkier, Stanislaw Joseph	6 Sumner Ave.
Coughlan, Robert E	428 Forty-seventh St.
Cox, Charles N	257 Jefferson Ave.
Crane, Claude G	119 Halsey St.
Cross, Frank Bethel	141 Seventh Ave.
Cruikshank, George H	140 Sixth Ave.
Cruikshank, William J	102 Fort Greene Pl.

D

Davis, George H	484a McDonough St.
Deely, George Edward	169 Woodruff Ave.
Delatour, H. Beeckman	73 Eighth Ave.
De Long, William A	170 Bainbridge St.
De Lorme, Murrett F	344 Jay St.
Dewing, Oliver M.	Long Island State Hospital
Dexter, Thurston H	411 Hancock St.
Dickert, John D	922 Bushwick Ave.
Dickinson, Robert L	168 Clinton St.
Dillon, William	192 North Sixth St.
Dowd, James H. B	3923 Fort Hamilton Ave.
Doyle, Francis Benedict	311 State St.
Drury, George	235 Washington Ave.
Dudley, William F	32 Livingston St.
Duffield, Warren L	99 Berkeley Pl.
Durham, Roger	671 Vanderbilt Ave.

E

Eastman, Frederick C	1269 Bergen St.
Eastmond, Charles	382 Adelphi St.
Edson, Benjamin	83 St. Marks Ave.
Erdmann, Adolph Frederick	458 Ninth St.
Evans, George A	909 Bedford Ave.

F

Fairbairn, Henry A	249 McDonough St.
Figueira, Mathias	14 Stuyvesant Ave.
Fiske, Edwin H	20 Fort Greene Pl.
Fitzgerald, J. F	Kings County Hospital
Fleming, James W	471 Bedford Ave.
Foote, Lewis N	147 Hancock St.
Fowler, Russell S	301 De Kalb Ave.
Fraser, Homer E	18 South Portland Ave.
French, Thomas R	150 Joralemon St.
Frischbier, Charles P	865 Halsey St.
Frischbier, Otto G	235 Humboldt St.
Fuhs, Jacob	871 Park Pl.
Fulda, Carl	1096 Halsey St.

G

Gallagher, James T	449 Lafayette Ave.
Geis, Norman P	1325 Pacific St.
Gildersleeve, Charles P	18 Schermerhorn St.
Goodrich, Charles H	280 Park Pl.
Gordon, Onslow A	71 Halsey St.
Grant, Walter S	340 Stuyvesant Ave.
Griffiths, Albert T	1115 Ocean Ave.
Guenther, T. C	20 Seventh Ave.

H

Hall, Gordon R	164 Clinton St.
Haller, J. Frederick	291 Stuyvesant Ave.
Hamlin, George D	1260 Pacific St.
Hancock, James Cole	43 Cambridge Pl.
Harrigan, John	401 Clinton St.
Harrington, Burt D	50 Lenox Rd.
Harrison, Daniel A	31 Sidney Pl.
Hatch, Edwin A	857 Marcy Ave.
Hawley, George R	203 Gates Ave.
Hegeman, Thomas B	2603 Newkirk Ave.
Henry, Charles C	56 Clark St.
Herriman, Rudolph L. F	1083 Bushwick Ave.
Hicks, Edward E	295 Stuyvesant Ave.
Hodgskin, Edward Sterling	13 Seventh Ave.
Holden, Frederick C	63 Seventh Ave.
Hoole, Lester Page	974 St. Marks Ave.
Horni, John	179 Penn St.
Horstman, August G	Jewish Hospital
Hotchkiss, Henry T	146 Halsey St.
Howe, Alexander Coddling	307 Cumberland St.
Hoxie, Edward Hazard	1 Hart St.
Hubbard, William S	1138 Bergen St.
Hulse, Clarence H	20 Monitor St.

Humpstone, O. Paul	105 Greene Ave.
Hyde, Clarence R.	126 Joralemon St.
Hyde, Joel W.	215 Schermerhorn St.

I

Ingalls, James W.	874 Lafayette Ave.
Ives, Robert F.	8504 Twenty-second Ave.

J

Jackman, Luther Taylor	257 Twelfth St.
Jameson, P. Chalmers	139 Montague St.
Jennings, John E.	164 Halsey St.
Jewett, Charles	330 Clinton Ave.
Jewett, Frederick A.	282 Hancock St.
Jewett, Harold F.	1072 Bergen St.
Jewett, William A.	380 Vanderbilt Ave.
Joachim, Henry	591 Putnam Ave.
Joerg, Oswald	12 Schermerhorn St.
Judd, Albert Martin	188 Sixth Ave.

K

Keil, Peter A.	170 Barbey St.
Kene, Joseph A.	64 Greene Ave.
Kennedy, James C.	762 Willoughby Ave.
Kerr, Le Grand	110 Cumberland St.
Kevin, Christopher D.	719 Halsey St.
Kevin, J. Richard	252 Gates Ave.
Keyes, James J.	226 Seventeenth St.
Kinne, William	48 Fourth Ave.
Kirk, F. James	233 Wierfield St.
Knause, B. Frank	1076 Bushwick Ave.
Koerner, William F.	154 Rodney St.
Kuhn, George R.	122 Clinton Ave.

L

Lack, C. Eugene	692 Tenth St.
Lamadrid, Julio J.	412 Greene Ave.
Langstaff, Lewis G.	175 Sixth Ave.
Lauria, Leon	249 Hewes St.
Lawrence, Andrew Wilson	558 Bedford Ave.
Lee, John A.	23 Revere Pl.
Lester, John C.	175 Schermerhorn St.
Lewis, Maurice T.	414 Fifty-fifth St.
Lewis, Stewart	37 Cambridge Pl.
Lindridge, Edward F.	424 Vanderbilt Ave.
Little, George F.	469 Clinton Ave.
Little, William A.	923 Bedford Ave.
Longmore, John A.	26 Schermerhorn St.
Longstreet, Arthur Hubert	20 Seventh Ave.
Love, Cornelius R.	167 Clinton St.
Lubrecht, Charles A.	966 Bedford Ave.
Lucas, David F.	552 Pacific St.
Ludlum, Walter J.	262 East Fifteenth St
Luhrsen, Ernest Frederick	292 Greene Ave.
Lutz, Stephen H.	284 Hancock St.

M

MacCoy, Cecil	151 Clinton St.
MacEvitt, John C.	407 Clinton St.
MacGilvary, Stanley H	822 Bedford Ave.
MacVean, Charles H	1315 Fifty-second St.
Maddren, William	1 Hanson Pl.
Maddren, William Harvey	131 South Oxford St.
Mangan, Daniel C.	95 Park Ave.
Manley, Mark	261 Monroe St.
Manning, Charles Edwarde	480 Putnam Ave.
Marsh, Edward F	448 Ninth St.
Marshall, Joseph Hall	536 Monroe St.
Matheson, A. Ross	37 Seventh Ave.
Matheson, Sewall	173 Underhill Ave.
Matson, Nathaniel	1249 Pacific St.
Mayne, Earl H	8744 Eighteenth Ave.
McCammon, Frederick J	139 Decatur St.
McChesney, Herman Franklin	90 Halsey St.
McClelland, Lefferts A	78 McDonough St.
McCorkle, John A	149 Clinton St.
McEntee, Edward J	93 Lee Ave.
McNamara, Sylvester James	369 Union St.
McNaughton, George	479 Clinton Ave.
Menecke, Philip	155 Herkimer St.
Merzbach, Joseph	198 Eighth Ave.
Mills, Henry M	192a Sixth Ave.
Miller, Lewis H	109 Halsey St.
Miller, Francis H	64 Pennsylvania Ave.
Morris, Edward J	771a Union St.
Morrison, Robert J	354 Tompkins Ave.
Morton, Henry H	32 Schermerhorn St.
Munson, Forbes J	330a Lafayette Ave.
Murray, Archibald	69 Remsen St.

N

Napier, Charles Dwight	1273 Bedford Ave.
Nichols, Louis L	386 Stuyvesant Ave.
North, Nelson L	150 Hancock St.
Northridge, Thomas H	320 Cumberland St.
Northridge, William A	21 Hanson Pl.

O

Oatman, Edward L	82 Remsen St.
Otis, F. Burton	369 Hancock St.

P

Palmer, Ernest	155 Clinton St.
Pentlarge, Victor H	198 Eighth Ave.
Peterman, Charles P	809a Greene Ave.
Pettit, Henry S	Adelphi College.
Philleo, Willis H	155 Herkimer St.
Pilcher, Lewis S.	386 Grand Ave.
Pilcher, Paul	386 Grand Ave.
Polak, John O	287 Clinton Ave.
Pomeroy, Ralph H	511 Nostrand Ave.
Pool, William P	147 Clinton St.
Potter, Alfred	523 Twelfth St.
Price, Henry R	435 Clinton Ave.

Q

Quell, John A.	478 Decatur St.

R

Rae, Alexander	117 Henry St.
Rankin, William H.	151 Hancock St.
Rankin, John	600 Jefferson Ave.
Rathbun, Nathaniel P.	240 Greene Ave.
Rauth, Emil	695 Lafayette Ave.
Raynor, Frank C.	157 Clinton St.
Read, Henry N.	228 Clinton St.
Reeve, Albert L.	420 Gold St.
Reichers, George Henry	1411 Bushwick Ave.
Reynolds, Willard G.	516 Nostrand Ave.
Riggs, Herman C.	117 Montague St.
Roberts, Dudley D.	84 Remsen St.
Robertson, Victor A.	834 Union St.
Rogers, Henry C.	377 Gates Ave.
Ross, William H.	Hewes St. and Lee Ave.
Royce, Rubert S.	211 Greene Ave.
Russell, Julien W.	6 Plaza St.

S

Sauer, C. Theodore	284 Sixth Ave.
Schauf, Adam	198 Vernon Ave.
Schirmer, William C.	596 St. Marks Ave.
Schlitz, Francis Augustus	28 Jefferson St.
Schoenijahn, W. Carl	822 Union St.
Schroeder, William	339 President St.
Scofield, Charles Edward	72 Lee Ave.
Scott, Peter	126 New York Ave.
Search, Charles J.	168 Putnam Ave.
Shattuck, Warren S.	160 Clinton St.
Shea, J. Denton	427 Eighth Ave.
Shepard, William H.	415 Fifty-sixth St.
Sheppard, John E.	130 Montague St.
Sherwell, Samuel	33 Schermerhorn St.
Sherwood, Walter A.	562 Bergen St.
Shipley Alfred E.	111 Halsey St.
Shoop, Frederick J.	316 Cumberland St.
Simmons, Warren S.	216 St. James Pl.
Simmons, William	23 Schermerhorn St.
Simrell, George W.	190 Clarkson St.
Skelton, Eugene Wilson	296 Sixth Ave.
Smith, J. Wheeler	1120 Herkimer St.
Smith, Henry Mitchell	113 Montague St.
Smith, Edward J.	2016 Albemarle Rd.
Smith, George Albert Hayes	313 Sixth Ave.
Somers, James Alpheus	96 Greene Ave.
Spence, Thomas B.	139 Seventh Ave.
Stanwix, George B.	1170 Dean St.
Sterling, John H.	45 Hanson Pl.
Stern, Bernard	2604 Avenue F
Stickle, Charles W.	130 Montague St.
Stivers, George L.	303 Vanderbilt Ave.
Stivers, John R.	180 Lefferts Pl.

Straub, George C	846 St. Johns Pl.
Sturges, Purdy H	145 Seventh Ave.
Sullivan, John D	74 McDonough St.

T

Taddikin, Paul G	Long Island State Hospital
Tag, Charles H	168 Keap St.
Taylor, John M	438 Third St.
Taylor, J. Richard	1275 Bedford Ave.
Taylor, Stephen L	644 St. Marks Ave.
Taylor, Vernon E	427 Decatur St.
Terhune, James J	169 Adelphi St.
Thomas, Jerome B	171 Joralemon St.
Thompson, James E	223 Greene Ave.
Tilney, Frederick	47 Pierrepont St.
Todd, Joseph F	402 Sterling Pl.
Tomes, William Austin	500 Classon Ave.
Townsend, Palmer	588 Jefferson Ave.
Treadwell, George H	64 South Portland Ave.
Truslow, Walter	142 Clinton St.
Tuthill, James Y	100 Fort Greene Pl.

V

Van Cott, Joshua M	188 Henry St.

W

Wade, H. Albert	495 Greene Ave.
Wadsworth, Emory M	1270 Pacific St.
Wagner, John J	28 Seventh Ave.
Warbasse, James P	386 Washington Ave.
Waterman, James Sears	676 St. Marks Ave.
Waugh, Darwin W	388 Clinton St.
Waugh, Henry H	39 Schermerhorn St.
Webster, Henry Goodwin	162 Halsey St.
Weed, Ver Nooy W	1238 Halsey St.
West, Frank E	172 Clinton St.
Westbrook, Richard W	1145 Dean St.
Wheeler, Robert T	209 Hewes St.
White, Henry D	206 Garfield Pl.
Wight, J. Sherman	30 Schermerhorn St.
Williams, George A	449 Hancock St.
Williams, John G	753a Union St.
Williams, Ralph Clark	515 Forty-seventh St.
Wilson, Frank E	1242 Bushwick Ave.
Winfield, James M	47 Halsey St.
Wood, J. Scott	172 Sixth Ave.
Wood, Walter C	1276 Pacific St.
Wood, Ver Nooy	1248 Halsey St.
Woolsey, William C	88 Lafayette Ave.
Wright, Edward W	115 Montague St.
Wunderlich, Frederick William	165 Remsen St.

Y

Yerdon, Charles F	1276 Herkimer St.

Z

Zimmerman, Victor L	271 Stuyvesant Ave.

QUEENS-NASSAU AND SUFFOLK COUNTIES.

A

Allen, S. P.	Riverhead
Auger, Henry M	Jamaica

B

Baker, Clarence A.	Yaphank
Baker, William A.	Islip
Baldwin, L. C.	Bellport
Barker, H. L.	Woodside
Barnes, Irving F.	Oyster Bay
Barry, John H.	153 Eleventh St., Long Island City
Bates, Ferdinand J.	Setauket
Benjamin, Frank E.	Shelter Island
Benjamin, John H.	Riverhead
Blanchard, A. J.	Jamaica
Bloodgood, John F.	Flushing
Bodine, L. A. S.	East Hampton
Boettinger, C.	440 Ditmas Ave., Long Island City
Bogart, John H.	Roslyn
Brundage, John D.	Westhampton Beach
Brush, Barton W.	Woodside
Bumster, P. H.	36 Ely Ave., Long Island City
Burnett, W. J.	127 Third St., Long Island City
Burns, James E.	Glen Cove

C

Caldwell, M. Stuart	Far Rockaway
Capron, A. C.	Kings Park
Carman, E.	Freeport
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D

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Goodridge, Edwin A	Flushing

H

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Harding, James R.	College Point
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RECENT ADVANCES IN INTESTINAL SURGERY.

By ALGERNON T. BRISTOW, M.D.,

BROOKLYN-NEW YORK.

WE shall better appreciate the advances in intestinal surgery if we take a brief excursion into its history; moreover, we shall be surprised to find that this dates back to a period far more remote than many of us suspect. As early as the middle of the thirteenth century, that is about the year 1250, there flourished in Paris four monks who practiced surgery together and were called the four masters. In that turbulent age and city, wounds of the intestine must have been very frequent from the free use of the rapier in duels and midnight brawls. The uniform fatality of such injuries when the bowel was punctured or divided led these acute observers, who provided ghostly consolation with surgical aid, to invent some method of easy and rapid repair of these wounds. Accordingly they devised an operation which has been little improved in the seven centuries following. They introduced into the divided bowel the trachea of a calf and then made an end-to-end anastomosis over this support, passing their sutures through all the coats of the bowel. They did not however attempt to invert the bowel after the method of Lembert. As a matter of fact, since their sutures were of necessity introduced beyond the cut surfaces on each end of the bowel, they did actually turn in some serous membrane. This is the method of end-to-end anastomosis much as practiced to-day, but with the intervention of an elastic tube of animal origin which would soften rapidly after the accomplishment of its function. We doubt whether we have any method to-day which is really better than this procedure now nearly seven hundred years old. Other curious substances were used by different surgeons who imitated the method of the four masters without improving it.

Theodoric and others used a joint of elderwood from which the pith had been expelled. The dried bowel of an animal was utilized by William of Salicet, while still later Sabatier, Chopart and others used a cylinder made of a playing card varnished. In 1790 Watson used a cylinder of isinglass. Direct anastomosis, however, was never a popular mode of repair with the medieval surgeons, perhaps because they had to deal with partial wounds of the gut which require suture rather than the bolder and more difficult method of the four masters. Thus we find innumerable methods of suture coming into vogue. In 1710, Palfyn used a single loop of thread which he passed through the middle of the wound in the intestine and fixed the ends of the thread to the skin by plaster, thus approximating the bowel to the external wound without suture. La Peyronie passed a thread through the mesenteric attachment of the wounded bowel and stitched the bowel to the skin. These similar methods of suture secured relative safety against peritoneal contamination, but resulted in the formation of an artificial anus. They became popular because of the fact that leakage was common when the intestine was sutured and dropped within the abdomen. When we understand the methods of suture which were first used, we can readily understand why the method of Palfyn and La Peyronie for a time supplanted the method of complete suture. Curiously enough in the eighteenth century, in which originated most of our varieties of suture, surgeons had a dread of introducing a sufficient number of stitches to prevent leakage, because they were afraid of irritating the bowel with multiple sutures. Says Cooper on this subject: "If a case were to present itself in which a bowel partly cut through protruded, I should only apply a single suture made with a small sewing needle and a piece of fine silk. If the bowel were completely cut across I should have no objection to attach its ends together by means of two or three stitches of the same kind." The four masters of the thirteenth century could have taught this master of the eighteenth century a much better method. Yet even they used but four sutures to hold the divided ends of the bowel in apposition, relying on the dried trachea within the lumen of the bowel to provide against leakage.

Without complete and careful suture no method of closure or anastomosis can ever be made safe, and the first lesson which surgeons had to learn was that stitches could be placed very close together without the disastrous results which were feared. As soon as this was understood, countless were the varieties of suture which were devised. In Ashurst's Encyclopedia of Surgery, published more than twenty years ago, there are more than twenty different stitches described, nor is there a single form of suture which has been invented in the last five years which is not either identical with some of the sutures invented in the eighteenth century, or a modification thereof. Many of them are wonderful in their complication. For a long time it was held that the best manner of suturing bowel was to pass the silk through the fibrocellular uamella without passing through the mucous membrane into the lumen of the gut. A through and through suture was supposed to be fraught with danger on account of the supposed liability of infection to pass from within the bowel along the suture line. The methods of Maunsell and Connell, in which the sutures are passed entirely through the bowel, have proved this fear to be groundless. The adhesion of the peritoneal surfaces apposed by the suture line takes place so rapidly that the effusion of the intestinal juices is rendered impossible. This fact renders it possible to cast aside all complicated methods of suture and adopt the through and through suture for end-to-end anastomosis.

From the time when the four monks of Paris used the calf's trachea as a support over which to sew divided intestine, to the present day, the number of appliances which have been invented for a similar purpose have even exceeded the varieties of suture, and most of our modern devices have their prototypes either in the middle ages or in the eighteenth century. The earliest appliances have already been mentioned. In 1826, Denans devised a set of three canulæ which contained the principle of Murphy's button, devised more than half a century later. It will be of interest to briefly describe this device. Denans employed three metal cylinders or ferrules, two of equal size and a third somewhat smaller. The two cylinders were introduced into the ends of the divided bowel, the ends of which overlapped the ends of the cylinders; the third or concentric cylinder was then forced within the other two, and of course jammed the two ends of the bowel between it and the two larger cylinders. At first Denans secured the apposition of the three cylinders by a suture which embraced them all, but which passed beneath the peritoneal coat. This stitch he afterward abandoned as unnecessary. The parts of the bowel within the grasp of the rings sloughed and the rings were passed per anum. Senn's plates had their prototype also about the same time. In 1827, Reybard devised an oval plate made of thin, polished deal about an inch and a half long and three-quarters of an inch wide. This was suspended by three loops of thread passed through the middle of the disk about an eighth of an inch apart, each thread being armed with a needle. This plate was passed into the wounded bowel, the needles were then passed through the intestinal wall and through the abdominal wall also, and tightened over a bolster of linen. The sutures were cut after two days and withdrawn, releasing the plate. Here the bowel was held against the abdominal wall and parietal peritoneum.

The past twenty-five years have witnessed the invention of a score of mechanical appliances based on one of the three types represented by the animal tube of the four masters, the deal plate of Reybard or the ferrules of Denans. Belonging to the first type are the various bobbins and tubes of bone, potato, turnip, and cork; also the collapsible rubber bags of Treves and Halsted, which had their more immediate prototype in the dried bowel of William of Salicet. Akin to the deal plate of Reybard are the plates of Senn, plates made of vegetable tissue, such as the turnip and potato plates of Baracz and Dawbarn, rawhide plates, cartilage plates, and plates made of gelatin. A sort of compromise between plates and tubes are catgut rings and segmented rubber rings. Finally, there are Ramauge's platinum rings, Harrington's segmented aluminum rings, and the most ingenious and effective of all this class of appliance, the button of Murphy. The various ringed forceps which have been lately introduced for supporting the intestine and keeping the peritoneal surfaces apposed during suture had no parallel in medieval times. Those of La Place are a fair example of this type of apparatus. For those surgeons who rely on apparatus to assist them in their intestinal surgery, the instrument maker offers an almost endless variety of appliances of all grades of ingenuity and complexity.

The advances which have been made in recent years in intestinal surgery may be classified as follows: Improvements in the methods of suture; improvements in apparatus; improvements in general technique. Some additions have also been made to our methods of diagnosis, particularly in the obscure cases of appendicitis which sometimes present themselves, in which both abscess and gangrene may exist without much pain, tenderness, and even with a normal pulse and temperature. To refer more particularly to improved methods of suture: Speed is a prime requisite in all surgical work on the intestines, and that suture is the best for use which secures accurate coaptation with the least liability to leakage and yet which does not require much time to introduce. Connell's suture seems to the writer to fulfil these conditions better than any other stitch which is at present described in surgical works. It is a through and through suture. The only objection to it is that it is somewhat difficult to learn. The knots all lie within the caliber of the bowel and it is to secure this end that makes the complication. It is not necessary to describe it here. It has never seemed to the writer that it was of much importance, however, whether the knot is placed within or without the bowel, provided very fine silk be used. All such sutures are discharged into the lumen of the bowel finally. There is no parallel between the large knot which is made when tying a vessel with catgut and the tiny knot of fine silk which should be used in intestinal work. It is necessary that the silk should be fresh each time, that is to say it should have been boiled but once. A second boiling renders it so fragile that it breaks easily. Pagenstecher's linen thread, coated with celluloid, is preferable to silk, since it does not lose its strength by boiling. While therefore the writer commends Connell's suture, he believes that the plain through and through suture passing through all the coats of the bowel has the advantage in point of simplicity and ease of application, and that provided the silk be sufficiently fine, nothing is gained by leaving the knot within the lumen of the bowel. The recognition that a suture which passes entirely through all the coats of the bowel may yet be safe, in fact is safe, is the most important advance, in the opinion of the writer, in the matter of methods of suture. It does away at once with all the complicated and time-consuming devices of which the books are full. If the surgeon has a fancy for apparatus, there has never been invented anything more ingenious than the Murphy button. It is particularly useful to the surgeon whose experience is limited in this field of work. The ring clamps of La Place are excellent devices, which have the advantage over the button in that they are withdrawn after suture is complete, and hence avoid leaving a foreign body within the lumen of the gut, one of the great objections to the ingenious device of Dr. Murphy.

When one comes to consider the improvements in general technique, we are forced to the conclusion that the tendency among all surgeons who do much intestinal surgery is to the simplification of their technique, and the abandonment of mechanical aids. Thus Moynihan, in his recent work on abdominal surgery, entirely rejects the Murphy button for the performance of gastroenterostomy and employs his forceps merely for the purpose of bringing the stomach and bowel in contact; they are in fact handles for the bowel and pressure forceps and in no wise resemble the clamps of La Place. The objections to the button for gastroenterostomy may be thus stated: There is almost an even chance that the button will remain in the stomach instead of falling into the bowel. This mishap may be rendered less frequent by using a special button or by securing the lower half of the button to a glass bead of considerable size which is then dropped into the bowel; a second objection is that the opening which can be secured by the button is rarely of sufficient size; and lastly this opening has a tendency to contract subsequently. It is proper here to mention the device of an American surgeon which it seems to me has all the advantages of the Moynihan operation and the button combined. I refer to the elastic ligature of McGraw of Detroit. Dr. McGraw secures the stomach to the intestine in the same manner as Moynihan; he then passes through all the coats of the stomach in a line parallel to the axis of the bowel a thin elastic ligature and returns it through the bowel in a similar direction; the two ends of ligature are then tightened and the knot secured by a silk ligature; the elastic ligature is then buried by a continuation of the running suture. The ligature cuts its way through the included viscera and is discharged into the bowel. As the elastic ligature is passed through the bowel it is held on the stretch so that it is very thin. When the tension is released it returns to its original diameter and keeps the points of entrance tight. Any length of opening that is required may be secured. Such a suture may be introduced in a shorter time than the Murphy button, or than a Moynihan operation can be completed. It is not used as much as its merits deserve. Recently Dr. Cumston has advocated a modification of the old-fashioned invagination suture of Jobert, preferring this method to a circular enterrophy, on the ground that the latter operation is liable to produce a diaphragm with subsequent stricture, and that the liability to leakage is greater. The writer does not believe that either of these objections is well founded. Moreover, Cumston overlooks the danger of sloughing which always exists in some degree in invagination methods, as remarked by Dr. Bryant in his operative surgery.

There is much to encourage us in the surgery of the malignant growths affecting the intestine, more especially those about the cecum and in the colon. Of 51 cases of sarcoma of the bowel upon which excision was performed there were 34 operative recoveries, of which 6 were reported as free from recurrence after periods of from one to nine years; 12 others free after intervals of three to eight months. Pollard, in the British Medical Journal of January 23, 1904, reported a series of seven cases of carcinoma of the colon on which he had operated without a single death; one of these died four years afterward of heart disease. The remainder were alive after periods varying from two months to four years. Certainly these figures ought to bring us encouragement.

When we consider that the mortality of actual perforation in typhoid fever must be 100 per cent, this paper would be incomplete without some reference to what surgery has been able to accomplish in this intestinal disease. In the January number, 1904, of the *Annals of Surgery*, Harte and Ashurst presented a most complete discussion of typhoid perforation of the bowel. They report 362 cases operated upon with a mortality of 74 per cent.; 94 cases out of the whole number of 362 were, therefore, rescued from certain death. No achievement in intestinal surgery is more gratifying than this. The authors conclude that, in the favorable cases, the mortality ought not to be over 50 per cent. Another disease of the bowel which has hitherto been medically treated has been successfully subjected to surgical interference, namely, amebic dysentery. Murray and Weir have each attacked the problem. Murray in cases of chronic dysentery, which have resisted medical treatment, recommends right inguinal colostomy for the purpose of giving physiological rest to the injured bowel. Murray reports one successful case. Weir and Meyer have irrigated the colon by attaching the tip of the appendix to a laparotomy wound through which the colon was irrigated, the opening in the appendix making a fistulous aperture through which irrigations were made and injections of silver nitrate introduced. Time does not suffice to more than mention Monks' excellent paper in the *Annals of Surgery*, October, 1903, on intestinal localisation. Making use of his method he was successful in identifying a loop of intestine drawn through the wound in over 75 per cent. of the cases. Such are the most important of the advances which have been made in recent years in the surgery of the intestine. No attempt has been made to describe all the recent methods of suture or recent instruments which have been devised for this class of work, since this would require the whole evening.

In general one may epitomize somewhat as follows: the advances in intestinal surgery have followed improvements in diagnosis and the simplification of the technique. The surgeon who adopts for his motto that time honored precept, "non nocere," will always score the greatest number of successes in this field of work.

THE OUTDOOR TREATMENT OF TUBERCULAR JOINTS.*

By WALTER TRUSLOW, M.D.,

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THE rational treatment of tubercular arthritis has two distinct objects, neither of which must exclude the other, as each must supplement the other. We seek to conserve the resistive powers of the tissues to the action of the bacillus tuberculosis, by hygienic and dietetic regimen, and we minimize the peculiar effects of this action on the tissues — inflammation, muscle-spasm and habitual unequal muscle-action— by mechanical fixation of the joint or joints involved, and, rarely, by operation. Properly speaking, the former care belongs to the physician and the latter to the orthopedist, and there should be cordial co-operation between both. To that end we should freely discuss, in such gatherings as this, the entire care of the patient. This paper will limit itself to tuberculosis of joints in children, although many of the principles of treatment may be applied to adults as well.

The clinical picture of Potts' disease, hip-joint or other tubercular joint disease, is familiar as far as the general constitutional manifestations are concerned, but the specific lesions vary with the location of the disease, as do the mechanics of the treatment. We see the general symptoms of loss of appetite, loss of weight, peevishness and malaise common to all forms of tuberculous attack of the organism. If there is a joint involvement, removal of all clothing from the child, with observation of postures and gait, and active and passive manipulation of the joints will usually discover its location.

The diagnosis being reached, the parent should be made to understand the serious nature of the disease, especially its probable long duration and the necessity for strict attention to detail in the care of the child. The doctor, of course, judges for the individual case before he decides between home, hospital or sanitarium treatment; but it is his pleasure reasonably to assure the parent that if the details are faithfully carried out, and the case is seen early, the outlook for recovery is good. And by a good outlook is meant not only cessation of the course of the disease, with the entire eradication of the bacillus from the system, but reasonable improvement in the deformity and even restitution of normal function. But because the duration of treatment is necessarily long and because there may be so many slips in its detail, the prognosis, especially as to deformity, should be guarded.

Appreciation, then, of the importance of insuring that control of the patient which shall combine strict attention to the details of the mechanics involved and at a place where the patient may have a maximum of out-of-door life and where the air thus breathed may be pure, has led to the establishment in recent years of special hospitals and sanitaria for just this care.

It is the author's experience, as well as that of many others working in this line, that much of this care can be given the private patient at his home, but the possibilities of the special hospital will always be best.

The French have led in this. Nearly half a century ago the city of Paris established a hospital exclusively for children with tubercular joints and glands at Berck-sur-mer, on the northern coast of France; this now accommodates 600 children. In this locality are two privately established hospitals for the same purpose, containing one and two hundred beds, respectively.

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*Read before the Pediatric Section of the Kings County Medical Society, April 17, 1907.

The city of Lille maintains a sanatorium for Children at St. Pol-sur-mer, also on the northern coast of France. The French have several other special institutions of this kind.

They maintain that the sea air is of more benefit than fresh inland air, not only because of the purity of the atmosphere breathed, but because of the presence of various salts in the moisture-laden air and the greater proportion of ozone. There are also institutions in Germany, Austria, Belgium, Holland and Italy.

In England there is but one institution of this kind, the Royal Sea-Bathing Hospital at Margate, with 150 beds. Here, however, adults are admitted and occupy half of the beds available. They also exclude children below six years of age, while at the French hospitals they are received as early as two years; thus at the age when the disease is most amenable to treatment, the English children do not get the advantages of this special care.

In the early summer of 1904, the New York Association for the Improvement of the Condition of the Poor took about forty patients suffering from tubercular joint troubles and tubercular glands to their well-established Sea Breeze Hospital near the west end of Coney Island. The children thus received were from tenement houses, and often patients discharged as incurable from various city hospitals.

The windows were thrown open in the dormitories at night—indeed, the sashes were entirely removed—and the children were literally out of doors during the entire day. Those with Potts' disease who were not able to be up were placed on their Bradford frames, in a position where the sun could be constantly beating upon them. As soon as they could get about, they were put upon properly fitting braces or plaster-of-paris dressings, and played around in the sun just as healthy children would. As far as possible, when the conditions of their plaster apparatus permitted, they were taken in bathing daily.

Brannan[1] and Wallace[2], of New York, who served on the visiting staff, have reported the first year's work. Dr. Wallace's article is especially interesting when he deals with particular cases. He tells of the emaciated condition that these children presented on arriving, many with discharging sinuses and even with marked joint contractions and much pain, and then the quick cessation of the symptoms and prompt gain in weight and color.

At Sea Breeze Hospital the children have five meals a day—that is, the usual meals of breakfast, dinner and supper, and at ten and three a luncheon of plenty of milk and crackers. In the dietary of Sea Breeze, stress is laid on the importance of unlimited milk, eggs, fruit and fresh vegetables.

As to the orthopedic care of these children, Wallace makes a few interesting observations. For instance, he finds that the ordinary American leg-splints have a sole-piece entirely too narrow for the yielding sand. He therefore adopted one of two courses; he substituted for this a strong, broad plate about four by six inches; or, in those cases in which it seemed unnecessary to keep up the extension as well as fixation, the doctor, with much success, used only carefully applied plaster-of-paris dressing. At Sea Breeze they have found that the painful dressing of tubercular sinuses by irrigation and the use of drainage tubes is of comparatively little importance, especially as the nervous fear of expected dressing tends to interfere with the little patient's happy, well-ordered life. Wallace, therefore, substituted a routine of merely frequently changed external dressings, using plain sterile gauze; and he finds that the sinus openings usually remain sufficiently patent for ordinary drainage, and that cessation of discharges is probably quite as rapid. The author's experience heartily endorses this observation.

At the end of that first summer the condition of these children was so much improved that the managers of the New York Poor Association decided that it would be most disadvantageous for the little patients to return to the New York tenement homes where a relapse was quite probable, so they decided slightly to remodel one wing of these summer buildings and keep thirty-five children there during that winter. Practically the summer treatment was continued during the fall and the cold days of winter; when the greatest cold came on, the sashes were put into the window frames so as to make possible the partial closing of the windows on the side from which a strong gale might be blowing, but for the greater number of days and nights during the winter all doors and windows were kept open, and indeed, even when a storm was on, the windows on the lee side were kept wide open. The children were supplied with extra clothing in the day and bed-coverings at night, including woolen hoods, mittens and bed-slippers. The same rule for outdoor life prevailed; only the severest storms prevented the children playing in the sand as usual. Indeed, Brannan reports the unusual spectacle of Wallace sitting with a crowd of children around a great open fire on the beach on Christmas day, telling stories while the snow was falling on their oblivious heads. In a recent visit to the hospital the writer was told that the children did rather better in the fall, winter and spring than in the summer.

In December, 1900, the New York State Hospital for the Care of Crippled and Deformed Children was established. After experimentation at other localities, the management decided upon West Haverstraw, Rockland County, New York. Here on a high ridge, 500 feet above the Hudson, was an old mansion with many acres of ground about it, and in a situation quite ideal for unobstructed pure air. Children come from all parts of the State, usually being recommended by some State or county officer, their only qualifications being that they are unable to pay for treatment and that they need this special care. No children are taken at an age over sixteen.

This hospital, however, includes other orthopedic conditions, such as congenital deformities of hip and foot, the rachitic deformities of bow-legs and knock-knees, and the secondary effects of infantile paralysis. But the majority—sixty per cent. of the patients treated during the past year—are suffering with tubercular joint disease. Fifty per cent. of the latter have hip disease; fifteen per cent., diseases of the knee joint; and thirty-five per cent., tuberculosis of the spine. Except for the sea air, conditions at West Haverstraw are similar to those at Sea Breeze. At night the children sleep with windows wide open; during the day they live either in the open air, or, if at school-work or at meals, with open windows. This is the custom winter and summer.

The reputation of the distinguished surgeon-in-chief, Dr. Newton M. Shaffer, and of his assistants, is such as to insure that here, too, the orthopedic care is most rigidly attended to.

At White Plains the New York Orthopedic Hospital has conducted for two years a Country Branch, to which children are sent from the city hospital and cared for under conditions similar to those which prevail at West Haverstraw. Here, too, cases other than tuberculosis of the joints are treated, but of the fifty-one patients in the hospital on October 1st, the date of the last annual report, forty-eight were suffering from tubercular joint diseases, so that this hospital is mainly for children with diseases of this character.

Similar country care for tubercular children has been instituted near Boston, near Baltimore and near Toronto. In all three institutions inland locations have been preferred.

While still in an incomplete state, report should be made of the beginnings in this line in connection with Dr. Napier's orthopedic service at Kings County Hospital, Brooklyn. During the summer months, an Emergency Branch of the county hospital has been maintained at Coney Island, a modified residence building being used for the general hospital purposes. There is a little ground about this, and for two summers a large tent has been erected on an elevated board floor. Here some fifteen cots have been placed, and children with tubercular joints have been sent down from the main hospital. Selection has been made in favor of those most advanced in disease, especially those with open sinuses. Some are able to walk about in their brace or plaster-of-paris fixation dressings, others lie fixed on Bradford frames. All live during the entire time in the open air.

While observing a general gain in weight and health, as well as in the tendency for sinuses to close, we have also been able to compare relative conditions when the orthopedic care has been more or less strictly carried out. The coming summer will witness a more efficient and better trained corps of helpers added to the staff, and it is expected that the maximum improvement will thus be obtained. Here we have the disadvantage of but three to four months of the sea air, although the conditions of hospital life in the separate pavilions at the central hospital, where the children may, with greater ease, get out of doors, and where a large glass-enclosed southerly room insures much sunlight and fresh air, are unusually good for a city hospital.

The prolonged duration of the hospital care—extending sometimes over a period of years—has developed another factor of the problem, which, although perhaps not strictly a medical one, should yet demand our attention because of its indirect effect upon the physical as well as the mental and moral well-being of these patients. The writer refers to the education of these children. They are taken at an age when mental activity is great and when they can and should be trained much as other children are. As Hibbs[3] points out, "the institution must assume the responsibility of the home." He also takes the ground, which the writer believes the correct one, that although at the acute stage of the disease the care of these children is such that much consideration of their peevishness is necessary, this should be reduced to the minimum and the child must be made to see that he, too, is to be trained to bear his part in the work of the world. To this end, the best institutions to-day have well-established schools for mental studies and for manual and trade training. The effect on the general health is certainly beneficial.

Taking for granted that purity of air is the important feature, the relaive merits of seashore and dry inland air deserves some discussion. The French are in favor of the sea air. Those who are working at Sea Breeze, Coney Island, indorse this. Wallace, in discussing the question, refers to the work of W. M. Powell, in the American Text-book of Diseases of Children, and quotes: "Sea water contains three per cent. of saline matter, chlorides of sulphur, sodium, sulphate of magnesium, muriate of magnesium and calcium, and salts of iodine and bromine. The winds blowing over the ocean, impregnated with all these beneficent chemicals and carrying the spray to the land, together with the large quantity of ozone which we know the sea air to contain, have a stimulating influence upon the general condition, a curative effect upon the tuberculous lesions, and a sedative effect upon the nervous system." Shaffer[4], on the other hand, prefers the inland air. He says: "For the treatment of tubercular diseases of the spine and the major articulations the high altitudes are not required. A dry climate is, however, very clearly indicated. The ideal site comprises a country which is well wooded, if not mountainous, a considerably isolated elevation, with good natural drainage, and a position where winds of all quarters, even the cold blasts of winter, will have a full sweep." He even goes so far as to state that the farther these conditions are removed from the sea, the better.

It is the author's opinion that the removal from the impurities of the dark, sunless conditions of the city tenements, with the substitution of pure unobstructed air, is the essential thing. For children in whom the element of nerve irritability is a predominant factor the sea air is probably the more beneficial. But it would appear that the experience of Sea Breeze, where the tuberculous children do not fare so well in the warmer months of moisture-laden atmosphere, when contrasted with that of West Haverstraw and White Plains, would tend to favor the inland conditions. The experience of leaders of summer camps for boys and girls, where inland mountain regions are usually chosen in preference to the sea shore, would add testimony to that side.

Much of this open air treatment may be applied to the private patient, whether treated at his city home or taken to the country. Workers with pulmonary tuberculosis among the city poor have taught us valuable lessons which we may apply to our field. "Keep your windows and your bowels open," is, I am told, the terse summary of the instructions given by the clinicians at the recently established but much patronized municipal dispensaries for tuberculosis. We should instruct our patients that on even the coldest winter nights free air should circulate in the sleeping room; this will necessitate extra bed clothing. The increased oxygenation of the blood has not only the direct effect of increasing the resisting power of the tissues, but of improving the appetite, and thus of enlarging the capacity for taking nourishment. In outlining the dietary, considerable space should be given to milk and eggs and to fruit. During the day the patient must be much in the open air and in the sun; if fixed to a Bradford frame, this may be lifted to a simple "go-cart," such as is in common use among children to-day.

The ability to move about or even to be safely moved is possible only when the affected part is properly fixed by apparatus. We should here pause to emphasize the difficulties in this mechanical part of the treatment and the importance of their being overcome. One of the difficulties lies in the prejudice on the part of friends and even of physicians to the appearance of this apparatus; patient reasoning and improved technique on the part of the instrument maker have greatly lessened the force of this, and the experience of quick relief from pain will complete the conversion.

The cost of apparatus is another drawback to its use. In most of the dispensaries of our large cities this burden is lightened for the patient by special arrangements for renting braces in use, and at others by selling the brace at actual cost price, which is a figure representing but a small percentage of that charged by the usual instrument maker; this artisan often exacts additional money for his "experience" in measuring for the brace —a procedure which is generally worse than useless to the patient, his "experience" having progressed only in the direction of fitting to present conditions, while his knowledge of correcting principles is practically nil.

Another real difficulty in the mechanics of the treatment of diseased joints lies in the fact that rapid growth in length of limb or trunk renders frequent changes in the mechanism of the apparatus necessary. A cardinal principle of deformity corrected by braces is that the shape and size of the apparatus must be such as always to direct the relation of the joints-segments involved toward the normal positions—thus the bend of the apparatus must be always just less than the present angle of deformity. Progressive improvement in joint deformity is therefore a factor to be considered in connection with increase in bone lengths, when realizing that no one size or shape of brace is efficient for a considerable length of time. This difficulty is met by supplying a brace that is not only extensible (that is, by adjustment of screws, it may be lengthened to meet a certain amount of normal increase in length), but also sufficiently malleable to be bent with the nice use of iron twisters, yet not soft enough to "give" through its use by the child; the attendant must also insist upon visits frequent enough for him to make these changes. Only thus can diminution in deformity be accomplished.

Occasionally an abscess points so

markedly in a given direction as to make careful aseptic evacuation, either by aspiration or open incision desirable; or a joint, more easily reached (as the ankle or elbow), is so swollen with decomposed tissue and so riddled with sinuses as to render open incision with free curetting of necrosed bone and free washing out of the cavity a necessity. Recovery under these circumstances is certainly hastened by the outdoor life.

If then the open air treatment is so important a part of the general care of tubercular arthritis, no matter what form the special treatment may assume, we should expect the best conditions and the shortest duration of treatment to follow this combination care, viz., strict orthopedic procedure, long maintained at a locality where pure air is breathed night and day and where good wholesome food is given in abundance. When speaking of the duration of the disease, we must remember that we are considering entire eradication of the bacillus from the system. We find the experience of the French and of the workers in this country to agree on essential points. The average time for the cessation of acute symptoms in severe cases is three to six months; at the end of this time, the children who have had this ideal care are found healthy-appearing, with no pain or flexion deformity, and no discharging sinuses; they are much increased in weight and are usually walking about, with still some definite artificial limitation at the joint involved.

I suppose no one can state the exact length of time for convalescing treatment, but those most experienced in this work suggest that three years of observation and residence at the ideal location is necessary for the complete eradication of the causative factors and for the entire restitution to normal function, or such degree of normal function as is possible in the given case. Protracted as this period appears, when we look at the other side of the picture we realize that a great gain in our technique of treatment is here noted. Four or five years, or, indeed, the entire period of childhood and youth is often the record of disease in these cases; a wasted frame and a greatly lessened possibility of obtaining final normal function is the result of this prolonged duration of disease.

Instead of this, we see a large percentage of absolute cures after this rational course of treatment. Of the institutions mentioned in this country, none have been in operation long enough to report with sufficient accuracy on this question. One French writer, d'Espine[5], reports 93 per cent. of successful cases at Asile Dollfus and 87 per cent. at St. Pol.

SUMMARY.

1. The treatment of tubercular arthritis is of necessity long, and its cure means the entire eradication of the bacillus tuberculosis from the system and much improvement in, if not the entire restitution of, joint function.

2. The care includes the proper combination of orthopedic fixation of the joint involved, with such rigid oversight of the general condition of the patient as shall insure a maximum of pure air and an abundance of wholesome, nourishing food.

3. This combination treatment is best obtained at special out-of-town sanataria and hospitals, several of which have been recently established in this country.

4. The duration of treatment is necessarily long, but marked improvement is established after a few months, and three years is the average time required for cure in severe cases.

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142 Clinton Street.

THE OCULAR MANIFESTATIONS OF BRIGHT'S DISEASE.

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WHILE it is variously estimated that retinal changes are met with in only from ten to thirty per cent. of all cases of Bright's disease, and while some of these changes are observed in connection with other conditions, there can be not the slightest doubt that the ophthalmoscopic findings, when the eyes are involved, are of the utmost diagnostic value.

Owing to the comparatively short space of time during which scientific study of intraocular changes has been possible—that is, since the invention of the ophthalmoscope by Helmholtz in 1851—there has been some natural confusion with regard to the classification of pathological signs referable to individual intraocular diseases, but in typical cases of albuminuric retinitis the ophthalmoscopic appearances are characteristic. We must admit, however, that typical cases constitute by far the minority of those encountered, but notwithstanding this fact, most cases of albuminuric retinitis are sufficiently well marked to put us upon our guard.

The neuroretinitis of intracranial tumor, usually cerebellar, and of other intracranial disease, is the only pathological condition likely to really resemble typical albuminuric retinitis. Examination of the urine and observation for the purpose of detecting symptoms of the brain tumor or other disease should determine the true state.

The occurrence of visual disturbance accompanying dropsy had been noted a long time before Bright in 1827 ascertained the connection between dropsy and disease of the kidneys, and strange as it may seem it is certainly true that failing vision in many instances of renal disease is the cause of the patient's first consultation with the physician, and in some of these cases the disease is well advanced.

The first symptom of albuminuric retinitis is, naturally, diminution of vision varying in extent according to the seat of the lesion, being greatest when the macula is extensively involved. Subconjunctival hemorrhage may occur with frequent recurrences and rarely there is œdema of the conjunctiva.

The retina presents the usual signs of retinitis; swelling and hazziness of the retina and optic nerve, distension of the retinal vessels, especially the veins, hemorrhages, and later the signs of fatty degeneration, the white spots finally coalescing to form a ring or band around the optic nerve, the atrophic changes at the macula with their star-shaped arrangement, and eventually spots and areas of atrophy and hemorrhages scattered throughout the retina in limited numbers.

Albuminuric retinitis occurs most frequently between the ages of forty and sixty, and in connection with chronic interstitial nephritis, less frequently with parenchymatous nephritis, but it may be caused by any form of inflammation of the kidney resulting in albuminuria.

Concerning the pathology, most ophthalmologists concur in thinking that the disease of the walls of the retinal vessels (ultimately sclerosis) resulting in inflammation and degeneration of the retina is brought about by the uræmic condition of the blood.

The retinitis is usually a late symptom in Bright's disease, although it is sometimes the very first to be discovered.

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*Read before the Brooklyn Medical Association, May 8, 1907.

There seems to be no fixed relation between the course of the nephritis, the amount of albumin in the urine, and the degree of retinitis, but at the same time experience leads us to conclude that in the vast majority of cases of Bright's disease the patient dies within a few months after the appearance of albuminuric retinitis.

The treatment is of course directed to the nephritis. Local measures are of no avail.

In the retinitis accompanying the albuminuria of pregnancy the symptoms are the same as in the more acute forms of the disorders above described. It is most frequently found during the last months and vision may return to normal if the labor soon comes on or is hastened. An early occurence in the pregnancy may demand abortion to preserve or restore the affected sight.

During the course of Bright's disease sudden attacks of blindness may occur and are apt to be accompanied by headache, vomiting, convulsions, etc.; in other words, uræmic symptoms. The sudden loss of vision is due to uræmic toxæmia and may or may not be attended by retinal changes. Normal vision may return even after a severe attack.

The facts that this brief paper is intended to emphasize are, first, the great importance of albuminuric retinitis as a diagnostic and prognostic sign, and, secondly, that the retinitis is in some cases the first symptom noticed, although the kidney disease may have been in existence for a considerable time when the discovery is made.

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TRACHOMA.

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If you turn many lids you will soon see a conjunctiva with a few granules in the inferior retro-tarsal fold, usually discreet, rounded, transparent bodies. The chances are many to one that what you have found is not trachoma, but follicular conjunctivitis, a mild, non-contagious disease apt to disappear spontaneously without leaving structural changes. Trachoma, on the other hand, produces structural changes, first in the conjunctiva, then in the tarsus and cornea, with pannus, ulcer of the cornea, and often with loss ot the eye. It is contagious and very widely diffused; in Poland 50 per cent. of all cases of blindness are due to trachoma. The difficulty of diagnosis is on account of the different appearances it presents at different stages of the disease: thus we have the hyperæmic, congestive, catarrhal and purulent forms, and later, it is complicated with the structural changes it has itself induced.

Some time ago I operated on seven cases at the Long Island State Hospital; looking over my shoulder and watching very closely was one of the juniors. As case after case was brought up and operated, he looked puzzled and unsatisfied, but at the fifth case, which presented no symptoms until the upper retro-tarsal fold was exposed and there was a full-blown case, it all flashed upon him, and he saw the trachoma in all the other cases; it was plain to him. He said: "I shall know trachoma when I see it again." The pathological alterations in its early stages are not sufficiently distinctive or constant to warrant a differential diagnosis, but the clinical picture in its advanced stage is clear and easily recognized. The trachoma granule, however, is best seen in its early stages, when it is a small, round, grayish, opaque granule, one or two millimeters in diameter, embedded in, but rising above, the surface of the conjunctiva, usually on the palpebral portion around the retro-tarsal fold; it is very rarely seen on the conjunctiva of the globe.

The symptoms of acute trachoma are the symptoms of acute conjunctivitis, usually of the muco-purulent type, but it may be of the simple, congestive, or catarrhal type. There are apt to be scabs or crusts of dried matter on the cilia and on the margin of the lids; the lids are usually swollen, and if much swollen there will be partial ptosis; upon turning the lids the granules may be seen, and in bad cases these reach enormous size, being massed together like frog-spawn. If it be a chronic case there will be cicatrization, more especially of the upper lids; these lines of cicatrization may run lengthwise of the lids, and vary from a faint light to a yellow, dry, rough cartilaginous appearance, without a tinge of redness; here, of course, there is destruction of the mucous membrane. Frequently the patient will complain of discomfort and inability or difficulty in using his eyes, especially by artificial light; or of the feeling of a foreign body in the eye, burning, itching, heavy lids, etc. The patient may complain very bitterly of these things or he may make no complaint, and beyond swollen lids nothing may appear externally, but upon turning the lids a full-blown case may be present. There will be exacerbations and remissions of the disease, but it will not cure spontaneously, it will either remain stationary or it will progress to structural changes. No microbe has as yet been discovered which all investigators unite in acknowledging as peculiar to trachoma, and yet all are satisfied that it is of microbic origin. When the cornea becomes involved, as it always does, it is due to rubbing of the conjunctiva over the cornea or to scratching of the in-turned cilia which are directed against the cornea by the curved tarsus, which, of course, has been curved by the trachomatous inflammation, which is a very serious condition known as entropion. The scratching will cause keratitis, and this form of keratitis we call pannus, a soft, fleshy mass on and in the cornea, hiding the iris.

After a time pannus will soften the cornea and cause ulcer, which may go on and perforate; through this perforation the iris may prolapse, become incarcerated in the wound when it heals, and the dragging of the iris may occasion an iridocyclitis with softening and degeneration of the globe. Instead of producing ulcer, however, it may get up a diffuse keratitis, ending in an opaque cornea.

When we consider the fact that in some parts of New York one-third of the school children have trachoma, that one-fourth of all the school children in Brooklyn have trachoma, that one-half of all cases of blindness in Poland is caused by trachoma, this (in connection with our very large Polish emigration) should put us on our guard to prevent the spread of the disease on Long Island. This can be done, gentlemen, through your explaining to the Board of Education in your respective towns the natural history of this disease. It is during the school age that it does its greatest damage; very young children are not likely to be attacked because the adenoid tissue of the conjunctiva is not yet fully developed, but in adolescence and the early years of maturity it causes its greatest ravages.

There is this peculiarity about this disease that at times it would seem to be extremely contagious, becoming almost epidemic in families, in schools and in cities, while at other times it would seem to be but slightly contagious; thus it may be in one eye for years, the other not being affected, or, one member of a family or several children in a school may have it while the rest remain immune.

Perhaps the most distinguishing feature of this disease is its chronicity, the exacerbations and remissions of its inflammatory attacks; an attack may pass off and to all appearance the conjunctiva be normal, except for a slight scar; then will come again a severe exacerbation, to be followed in turn by a remission, and so on, each attack leaving structural changes.

The pathology of trachoma is unsettled, that it is due to a specific microbe is believed, but has not been positively demonstrated.

If a varied pathology has been asserted, an equally varied treatment has been advised. Of course the treatment has for its objct the removal of the trachomatous substance with as little injury to the mucous membrane as possible; for this purpose some astringent or caustic is used that will increase the hyperæmia of the part, and thus cause the absorption of the morbid material. Almost every known astringent and caustic has at some time been recommended and used with some success; certainly no strong caustic should be used, as that will cause the very destruction we wish to prevent. Mild cases may be treated by astringents, as tannic acid, or by the bichloride 1 to 3000, a treatment which will have to be kept up twice a day for months and months, and the difficulty of keeping the parents and patient up to this effort is well-nigh impossible, for a remission will frequently deceive both parent and physician into believing they have achieved a cure until they are bitterly undeceived.

By all odds the most satisfactory treatment is the surgical treatment. The operation known as expression gives good results and is free from danger if properly performed; it consists of a scarification of the granules, an expression of the morbid material, and a rubbing in the scarifications of a strong solution of bichloride. The result is most happy, leaving a conjunctiva smooth, uninjured and free from trachoma.

THE PHYSIOLOGY OF SLEEP.

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SLEEP has been described as the state of rest of will and muscular action—but this is hardly a good definition, for it has been noticed that persons are capable of performing elaborate muscular acts in sleep; and, moreover, everyone is familiar with a fact that shows the will is to a certain degree awake; the fact that by our will power we can awake at or near a predetermined moment. "Sleep is the resting place of consciousness" is the psychological definition, and consciousness is merely conscious memory; conscious memory, again, is nothing but the persistence of traces imprinted on our consciousness. This brings us to the point where we started, and therefore we must be content either with the incomplete psychological definition, or else define sleep by describing what it is like.

The theories of the cause of sleep have been myriad. The earliest students attributed it to some particular tissue or organ. Forneris attempted to identify in the thyroid gland the special organ of sleep; he noted the fact that at night the gland would swell, due to stasis of blood in it that had come from the brain, and claimed that by some means this was the cause of sleep. The fact, however, that people have lost the gland, and yet sleep normally, is enough to disprove the theory. Osborne placed the organ of sleep in the arachnoid plexus, which, he claimed, during sleep fills the ventricles of the brain, and so shuts off any communication between body and brain; this idea runs counter to the observed fact that in sleep the brain is in a state of anemia. The theory of Parkinjé is that communication with the outer world is shut off by pressure of the ganglia at the base of the brain upon the corona radiata, due to an afflux of blood. This theory, however, would allow of no changes in consciousness during sleep.

Of chemical theories there are the following: Sommer says that sleep is due to the impoverishment of oxygen in the brain, which occurs when exercise, both mental and physical, has exhausted the oxygen in the tissues and blood. Preyer, along the same line, claims that there are certain fatigue products in the blood, which are highly oxidizable substances, and by taking the oxygen required by the brain, cause the state of sleep. Prof. Pflüger says that the formation of carbonic acid causes oscillations and explosions in the brain which are most powerful in the waking state; when, however, the formation of carbonic acid in the brain ceases, because of the lack of oxygen, sleep ensues. Another investigator, Prof. Leo Errera, of Brussels, says that sleep is a process of physiological intoxication; the leukomains, products of a breaking-down process in the body, are carried to the brain and, because of their narcotic effect, cause sleep. In activity the leukomains increase faster than the oxygen can destroy them; but during sleep they are destroyed and carried away, leaving the nerve-cell cleansed and ready to carry any stimulus to awake the subject. This theory does not explain the ability to postpone sleep or to awake at a premeditated time.

The histologists have brought forward their line of theories. Rückardt, in his neurospongium theory, says that in the nerve cells are amœboid, protoplasmic prolongations which are in constant make and break during the waking life; sleep is due to the paralysis of these processes. Along the same line Prof. Lépine explains sleep by the retraction of certain ramifications of the cerebral cells and, therefore, their consequent isolation and inactivity. Prof. Duval says the cerebral neuron and its ramifications are very like an amœba in its actions; the ramifications, under varying stimuli, stretch out to a greater or less extent to the neurons. In sleep the ramifications are retracted and the depth of sleep depends upon the greater or less contiguity of them. Ramon y Cajal, on the other hand, says the neuroglia have amœboid characters capable of isolating nerve currents, and in rest these intervene between the cells and their protoplasmic processes, and in that way shut off impressions from the external world. These theories based on nerve histology without exception neglect the direct and fundamental fact that "the blood-vessels were made for the brain, and not the brain for the blood-vessels," and the amount of blood in the brain is regulated by the functional activity of nervous tissues. The chemical theories show many defects. According to Pflüger's theory, sleep should affect the entire nervous system, but it can be shown that the nerves and cord do not sleep. We must look in the highest centre, the brain, for the cause. The theory that by-products, due to mental or physical fatigue, cause sleep is equally at fault, since monotony of itself may lead to sleep.

Before, however, presenting that theory of sleep that seems to come nearest to the truth, let us consider briefly some phenomena of sleep. For sleep we all seek quiet, darkness, a place of comfort—in short, withdrawal of self from the external world; the eyes close and we retire into the shell of our personal world. As sleep occurs, the axes of the eyes have been found to converge and turn upward, and as it deepens they may become parallel, or even diverge; the pupils contract. The body temperature falls, due both to the dilatation of the peripheral vessels and to the increased activity of the sweat glands resulting from the irritation of the sweat centre by the increased amount of carbonic acid gas. The fall in temperature has been found to vary from 1° to 2.7° F.

The internal organs are in a state of lessened activity and corresponding anemia. Less saliva is secreted, and the secretions of the gastro-intestinal tract are enfeebled; the work of assimilation, however, goes on, and digestion continues. Moreover, that latter function is carried on better when mind and body are inactive and therefore the full blood supply can be allowed to the digestive process. The kidneys are less active, excreting materially less urine, and other internal organs show like states of quiescence. The heart action becomes slower and quieter; the pulse of a child of six months, Bouchart found, will fall from 140 awake to 120 asleep. Who has not noted at the approach of the resting hour a feeling of snugness of clothes, a swelling of limbs, feet and body generally? This is due to the dilatation of the peripheral vessels, with a resulting fall in blood pressure, a decrease in the heart action, and a lessened temperature. Mosso, Howell, and others have shown the enlargement of limbs to be due mainly to a relaxation of tone of the cutaneous vessels; this decrease in the resistance of the skin area, generally, and the consequent fall in the arterial pressure, results in a diminished flow of blood through the brain, corresponding to the increase of vaso-dilatation of the surface vessels.

It is evident that the peripheral nerves can, during sleep, transmit sensations to the central nervous system; because of this we seek the comfort, quiet and darkness of the night time; because of this also a word, a touch, a slight noise may suffice to awake a person from deep sleep—our senses of hearing and feeling are, therefore, active, but enfeebled. Cold and heat, also, affect the thermal centre more or less. The sense of smell is less alive to external stimuli, as shown by the fact that persons have been suffocated by escaping gas, the odor not being sufficient to arouse to a sense of danger.

Similar diminution in activity is seen in the higher centres. The cord is eminently the seat of reflex action, and therefore enfeeblement due to sleep must result in a decrease in such reflex action. The "knee jerk" in deepest sleep may not be obtained, but on the other hand it is invariably reinforced by external or internal stimuli: as sounds caused by walking, taps of a pencil, engine whistle, or by itching of the ears, swallowing, etc. Other reflexes, such as abdominal, cremasteric, pupil reaction, and reflex movements such as result from tickling the palm, foot, etc., show like lessening of excitability. The fact that certain stimuli react upon the higher centres in sleep shows that the brain is not wholly inactive. Observations upon persons whose brains have been exposed by some accident, and upon the brains of animals, have shown that in activity the brain is of a rosy hue, and of greater volume than in sleep, when it grows pale. Mosso's investigations upon a woman who had lost the fronto-parietal region of the skull demonstrated the facts that in sleep the lobes fell away from the wound; that sudden noises caused the brain to rise; and that when awake any cerebral activity was followed by a like increase in volume. This change in volume was due to increase or decrease of blood supply. He went further and constructed a nicely poised human balance with the subject lying horizontally; as sleep approached and the blood passed away from the brain to the extremities, the centre of balance was transferred toward the feet, and the head end in consequence rose. Similar anemia of the cord is claimed, and the fact that the pressure in the carotids diminishes in sleep has been proved.

Complete facts in regard to blood changes are lacking. After a sleepless night the red corpuscles are diminished in number; and this loss, since the red corpuscles are the means of gaseous exchange and oxydation in the blood, causes an increased rate of respiration. After a sleepless night, too, leucocytosis is arrested in the lymphatic channels (Gibson); under similar loss of sleep the human vision is accentuated, but memory and the power to memorize fail. In normal sleep the breathing is slower, shallower and confined to the thorax. Inspiration is prolonged in time, but the respiratory pause is absent, and less carbonic acid gas is eliminated—42 per cent., as against 58 per cent. awake, and more oxygen is absorbed. The voluntary muscles are capable of certain coördinated movements, as changing position, brushing away a fly, etc. In animals this is shown by the fact that certain birds sleep resting on one leg only.

Finally, the vaso-motor theory of sleep investigated by Durham, Hammond, Vizioli, Mosso and others, attract our attention. It is based upon the fact that the brain is in a state of anemia during sleep, and that to court sleep is to avoid all excitations from the external world that would stimulate the vaso-motor center. This relation between brain anemia and sleep can be observed readily in infants, the rise and the fall of the brain under the anterior fontanelle being easily perceived. It is true also that the blood supply increases with the brain activity. Durham and Fleming, with this fact in mind, went so far as to state that the condition following the compression of the carotids—that is, anemia of the brain—was similar to that of sleep. Hilton has added indirect proof to this by noting the fact that in fracture of the base of the skull the cerebrospinal fluid, which of itself flows from the ears only during waking hours, may be forced out in sleep by pressure upon the jugular veins. Tarchanoff found that puppies, that easily fall asleep, would not sleep if they were placed in such a position, with the head below the body, that venous stasis in the brain vessels resulted. By the application of heat to the periphery which draws the blood from the brain and internal organs, and also by exposure to extreme cold, which has the same effect, sleep is produced. We are also familiar with the sleepiness following a bountiful meal, after which the blood is drawn from the brain to the abdominal vessels.

Mosso and, later, Howell, have added valuable information by experiments with the plethysmograph, an instrument constructed to register changes in the volume of an extremity. Upon the approach of sleep the extremity dilated until in about one and a half hours the maximum was reached, and this point was maintained for over two hours until the waking point set in. Sudden fluctuations were coincident with a sneeze, movements of the sleeper, a passing cab, etc. From these facts Howell draws the following conclusions: Sleep is due (1) to a "diminution of irritability, caused by fatigue of large portions of the cortical area; (2) voluntary withdrawal of sensory and mental stimuli involved in the preparations for sleep; (3) a diminished blood supply to the brain, owing to a relaxation of tone in the vasomoter centre, and the fall of arterial pressure thereby produced." The last, he says, is the immediate cause of sleep.

In closing we may add that positive proof of the cause of sleep has yet to be found, and until such proof is found we shall have to rest content with the theories that most completely harmonize with the observed phenomena.

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RATIONAL TREATMENT OF NEURASTHENIA

WITH REPORT OF A CASE, AND SUGGESTED CLASSIFICATION

By **RALPH S. CONE, M.D.,**
Interne at Kings County Hospital, Brooklyn, N. Y.

THERE are two great points to be considered in the treatment of neurasthenia; (a) the best means of improving the nutrition of the entire nervous system; and (b) the treatment of the patient himself by psychical influence (auto-suggestion).

The first object is accomplished by a judicious combination of hygienic, dietetic and medicinal measures. The patient should be instructed to bathe every morning in water as cold as can be followed by a good reaction—preferably a shower. His bowels should be kept well opened, using for this purpose, if he is habitually constipated, as many of these patients are, Ext. Cascara fl. in sufficient doses to secure one good movement per day at least. He should eat an abundance of plain, well-cooked, easily digestible food, and take no stimulants of any kind unless ordered by the physician. A moderate amount of light outdoor exercise is of great value, but the patient should stop before he feels tired. He should also obtain an abundance of sleep, and so important is this that recourse to powerful drugs is justifiable if the proper amount of sleep cannot otherwise be obtained. A hot bath before retiring is an excellent means of inducing natural sleep, but when this fails drugs are usually necessary.

The patient should be instructed as to his clothing. His dress should be regulated by the weather, and flannel should be worn next to the skin all the year round; he should never bundle up any part of his body more than the rest, nor wear tight or constricting articles of clothing, as these cause inequalities in the circulation which affect not only the nervous system but the general health as well. He should correct all vices and bad habits, such as excessive sexual intercourse, smoking, etc. He should take either as food or as medicine substances that contain an abundance of the elements that are vital to the growth and health of the nervous system, in the hope that they may be absorbed and assimilated, and iron should also be administered in every case, in order to counteract the tendency to general anemia always associated with neurasthenia. A pill composed of iron, aloes and phosphorus makes an ideal combination, and is well borne by the stomach. At the same time the patient should be given nerve depressants, such as bromides and chloral, if he is habitually restless or excited, in order that the "nerve rest" which is so vital to the success of the treatment shall be secured. But the physician should make it an ironclad rule never to write for any "habit drug," but to invariably dispense them himself when indicated, and never to allow the patient under any circumstances to know what he is taking. If this plan were universally used, sedative drugs would enjoy more popularity in the profession than they have of late years. In the same manner the patient should be given nerve stimulants, such as strychnia or caffeine, if he is continuously depressed or has a tendency to melancholia, in order to prevent this, if possible, from becoming chronic.

The second point, and according to many authorities the main one, has been generally ignored by the great majority of physicians, but within the last few years the success of certain types of faith-healers in handling these cases has directed general attention to the subject. This success by persons totally ignorant of medical science in treating cases, formerly so rebellious to the foremost men in the medical profession, is a striking illustration of the importance of the psychical side of neurasthenia and its proper treatment. Little matter how it is accomplished; the secret of success is to turn the patient's mind into new channels. This may be brought about in an infinite number of ways, but travel, bringing as it does change of scene and environment, is undoubtedly about the best, if the patient can afford it; or he may be given something to do that will serve to occupy his mind in a different way from that to which he has been so long accustomed. In other words, the object is to exercise new brain cells and give the ones that have been worked out a chance to rest and recuperate; this they will invariably do in all cases of simple neurasthenia, if proper conditions for it are maintained for a sufficient length of time.

The following case is one of three that I have had under treatment on the above plan for the past eighteen months:

J. S., Typical Neurasthenic, the symptoms being both cerebral and spinal. Male, age 22, bank clerk; thin and anemic; neurotic ancestry on mother's side, but no history of insanity or epilepsy. Patient gives no venereal history; habits and appetite good; sleeps well and enjoys a fair state of health; heart and lungs normal. Patient has occasional attacks of the following character:

With or without a premonitory thumping sensation at the base of the neck, a sudden feeling as of standing in the air a few feet from the floor, together with great mental turbulence, seizes him. The hearing is greatly diminished, and all sounds heard seem to come from a distance; all external objects appear indistinct, sometimes they look black and sometimes green, but always as if a mist or fog were before the eyes. In this respect there is a resemblance to the onset of an attack of syncope. There is intense dryness of the mouth and throat, a burning, tingling sensation of the skin of the face and neck, and a feeling of tightness or constriction in the head, especially through the temples. From the waist down his extremities "feel dead;" the entire body has a sensation of lightness and numbness; there are no vertigo nor muscular weakness, and the patient is at no time unconscious. He is able to perform such acts as reading aloud throughout the entire duration of the attack, but does so automatically and without the slightest understanding of what he is doing or saying, except that he is so engaged. If asked a question at these times, he hears but does not understand, but is conscious of making a reply that always seems satisfactory. At other times he is unable to utter a word or move a limb, his whole body feeling as insensible as if made of wood; whatever is in his hands he is conscious of holding with great strength, although his hands are cold, numb and seemingly paralyzed. While the attack lasts, he declares he is in a state of extreme mental agony which he is wholly unable to describe.

Recovery from an attack is as sudden as its onset, and is characterized by tingling in the benumbed extremities and a feeling of great warmth over the entire body; this is followed by moderate sweating and some lassitude. As sensation returns to the hands, they are felt to be cold and clammy, but this quickly disappears with the other phenomena. There is slight headache, which lasts from a few minutes to several hours. By strong exercise of the will, patient can sometimes prevent these attacks when he feels one about to come on, but at other times they come on notwithstanding every effort to exercise this mental inhibitory power.

The patient says he was always "nervous," and had these attacks for several years previous to the first time I saw him. At this time he was having on an average three severe attacks of this kind every week; he was low-spirited and talked of giving up his work, but said he would rather die than do this, as he was the sole support of an invalid mother.

In addition to the outlined plan of treatment, I placed him upon the pharmacopæal arsenate of iron in ¼-grain doses t. i. d.; for three months his condition remained the same, then the attacks began to grow less severe and his general condition improved. In six months from the time I began to treat him he had an attack once a month, and he has not had one now for four months. Similar results appeared in the two cases referred to, and all three may now be regarded as on the highway to complete recovery.

Neurasthenia may be defined as the result of malnutrition of the nervous system.

The following classification is partly borrowed and partly original. I have found it valuable practically because it sets forth at a glance the various types met with:

I. CEREBRAL NEURASTHENIA.

Manifested through the intellect, emotions, memory and will,

As worry, anxiety, forgetfulness, restlessness, irritability, insomnia, self-consciousness, despondency, drowsiness, mental confusion, horrible dreams, somnambulism, love of solitude, the "phobias," aphasia, lack of concentration, loss of ambition, and tendency to suicide.

II. SPINAL AND SYMPATHETIC NEURASTHENIA.

Manifested through (a) Nervous System (N. S.).

"Nervous" neurasthenia, as painful spots, nervous deafness, amblyopia, headache, neuralgia, tinnitus, hyperesthesias and parasthesias.

(b) Respiratory System (R. S.).

Respiratory neurasthenia, as bronchchial asthma, hay fever and increased number of respirations.

(c) Cardio-Vascular System (C. V. S.).

Circulatory neurasthenia, as palpitation, blushing, angio-neurotic edema, vascular throbbing, fainting, urticaria and purpura.

(d) Digestive System (D. S.).

Gastro-intestinal neurasthenia, as nervous dyspepsia and nervous diarrhea.

(e) Glandular System (G. S.).

Eliminative neurasthenia, as polyuria, hyperidrosis, hyperthyroidism (exophthalmic goitre), salivation and seminal emissions.

(f) Articulo-Osseous System (O. S.).

Articulo-osseous neurasthenia, as hysterical joints and creaking vertebræ.

(g) Muscular System (M. S.).

Muscular neurasthenia, as twitching, trembling, chills, chattering, sleep-starting, pains, cramps, lassitude and weakness.

CASE REPORTS.

LATERAL ABERRANT THYROID.

By PAUL M. PILCHER, A.M., M.D.,
BROOKLYN-NEW YORK.

RECENT studies have demonstrated clearly that there are developed certain accessory glands which are made up entirely of thyroid glandular tissue. These are not the so-called parathyroids which exist in all normal persons, but are essentially pathological thyroids which have no direct connection with the normal thyroid bodies, and which exist independently of them. As a rule, these aberrant thyroids do not give rise to any symptoms excepting the deformity, and possible symptoms due to pressure. However, in the case occurring in the service of the writer at the Methodist Episcopal Hospital, the patient suffered from severe nervous manifestations, which entirely disappeared after the removal of the aberrant thyroid. The report of the case is as follows:

A woman, forty-two years of age, presented herself with a swelling on the right side of the neck anterior to the sterno-mastoid muscle, its centre being opposite the cricoid cartilage.

The growth was about the size of a green fig, and was freely movable beneath the skin.

Operation and removal of the gland. It was entirely independent of the normal thyroid body on that side, which could be felt in its proper place. Sections of the tumor showed it to be typical thyroid tissue.

The wound healed by primary union, and there was complete relief of the nervous manifestations.

TWO CASES OF LATERAL SINUS THROMBOSIS,*

PRESENTING SOME UNUSUAL FEATURES.

By **J. E. SHEPPARD, M.D.,**

BROOKLYN-NEW YORK,

CASE I. Albert M., aged seven years, was first seen by me March 6th, this year, having been referred by his family physician, Dr. G. G. Thompson. He had been ill with scarlatina during December and January, and began during his convalescence, about two months before I saw him, to have pain in his left ear, which pain had been more or less constant throughout the two months, and was attended during most of that time by a discharge from the ear; this, however, stopped rather suddenly about a week before I saw him. About three days after cessation of discharge, which would make it about four days before his first visit to me, a post-mastoid swelling was observed. When I saw him this swelling was large, red, not very tender, rather firm, and giving a very indistinct sensation of fluctuation, and was distinctly posterior to the mastoid, over which there was only a moderate amount of edema, and the auricle only slightly projecting from the side of the head. The canal did not contain pus; there was no sagging of the canal wall; the membrana tympani looked as if there had been a so-called teat-like postero-superior perforation which had recently closed. Temperature was 100.5°. Immediate operation was advised, and performed later the same day at the Brooklyn Hospital. The mastoid was opened in the usual manner; pus and granulations were found extending from the antrum to the apex; the whole bone substance was of a peculiar, somewhat soft consistency, giving, when using the curet, a sensation as if it were going through a rather firm Swiss cheese. After thoroughly clearing out the mastoid back to the sigmoid sinus, a horizontal incision was made (vertical to the first incision) through the soft parts, and through the large posterior swelling. To my surprise no pus was encountered, only in about the center of the swelling a small necrotic area, and the periosteum was still normally adherent to the bone.

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*Read at the meeting of the American Otological Society, in Washington, D. C., May 6 and 7, 1907.

After loosening this and reflecting it in both directions a small area of softened bone was found apparently surrounding the mastoid foramen; there was no bleeding on section of the emissary vein; the bone was removed so as to lay bare the sinus over a considerable area; the sinus wall did not present a normal color, and the feeling was that of a much thickened wall with blood flowing through the sinus beneath the thickening, and the interpretation I put upon it was that there was a rather extensive, but not thick parietal thrombus, which had extended into, and blocked, the emissary vein. From the appearance of the vessel, and in the absence of any history of pyemic manifestation, it seemed to me that the thrombus might not be infected, and I determined to leave the posterior incision open a few days to facilitate further operative measures, should they be indicated. The case, however, progressed as if there were no sinus involvement, and the wound, i. e., the horizontal incision, was closed on the fourth day after the operation, and the rest of the wound healed without incident, so that the patient was discharged well on April 19.

The character of the mastoid infection was unfortunately not determined, and for this reason; during the operation, I made the remark that some of the appearances were suggestive of a tubercular process, and the pathologist understood that he was to look for the tubercle bacillus, and failing to find this in the material sent him, did not investigate further.

As of interest in the case I might mention that my supposition before operation that I had to deal with a large posterior sub-periosteal abscess was wrong; that the swelling was evidently due to the obstructed emissary vein; that while no thrombus was suspected, yet there existed a large parietal clot, which would seem not to have been infected. Again, after finding that such a clot did exist, the question arose, what should be done with it? My determination to leave it alone seems to have been all right for this individual case, but would it be proper to generalize therefrom?

Case II. Mrs. W., aged 76, convalescent from a double pneumonia, and a sufferer for fourteen or fifteen years from a myxedema, had been suffering for about four weeks with severe pain in the right ear and over the right side of the head, accompanied by a distressing pulsating tinnitus; I was called in consultation by her physician, Dr. Currie, on January 22d, '07. During the past few days there had been a scanty discharge from the right ear. There was marked tenderness over the mastoid, extending from midway between the antrum and apex down to the tip, and posteriorly thereto. The auricle was in a normal position. The canal was pratically dry; the postero-superior wall moderately sagging. The membrana tympani was much reddened, apparently not perforated, while the posterior half had a characteristic pushed-out appearance. Temperature for the past two or three days had ranged from 101° to 102°, having been higher during the pneumonia, then for a while lower, and more recently somewhat elevated again, but having nothing about it to definitely suggest pyemia. In spite of the age of the patient, plus a convalescence from a severe double pneumonia, and in entire ignorance of what particular bearing the myxedema might have on the prognosis, operation was advised, and undertaken the following day, January 8th. The anesthetic used was ether plus a little chloroform, and was given by Dr. Buist. A moderate amount of pus, granulation tissue, and diseased bone were found, the latter leading directly to the lateral sinus, a partial exposure of which showed such an unhealthy looking sinus wall that it seemed to me wise to extensively uncover it, the drum membrane was incised, the wound flushed with alcohol, and the usual dressing was applied. Although the operation had been well borne up to this point, still it seemed to me unwise to further prolong it at this time. The temperature remained between 101° and 102°, and it seemed to me after three day that the sinus should be opened, which was done without any anesthetic, and a large amount of clot removed. A moderate flow of blood was obtained from towards the torcular, but practically none from the bulb, and the question of tying off the jugular became a burning one. In view of all the patient had been through, as well as of her present condition, I decided to risk it without doing this. During convalescence there were two periods of decided swelling (infiltration) of the tissues of the neck, one great swelling and hardness of both parotids, which I have since decided was probably mumps, and more or less nocturnal delirium, as well as a temperature which remained persistently above normal (99.5° to 101.5°), until after the wound was entirely healed, the patient being discharged cured on April 16th. The pathologist reported that the material from the mastoid and that from the clot within the sinus contained the same germs, "staphylococcus and streptococcus—principally the former."

As of interest in this case may be mentioned the convalescence from a severe double pneumonia and the myxedema of several years' standing, as well as the fact that there was nothing previous to operation to lead me to suspect the presence of an infective lateral sinus thrombosis. Would it have been better to empty the sinus at the time of the original operation? Was I taking an undue risk in not tying the jugular? I must confess to several days of great anxiety, owing to the nocturnal delirium, the infiltration of the tissues of the neck, and later the double parotitis. There was always the uncertainty whether these symptoms were due to myxedema or to the sinus thrombosis. Again the persistent though moderate elevation of temperature was for a long time disquieting, in view of the fact that myxedema is generally attended by a slightly sub-normal temperature. Against doing more, however, there was always the fear of doing too much surgery in a case of this character, and the outcome perhaps gives justification for the policy pursued.

OCTOBER MEETING

OF THE

Associated Physicians of Long Island

TO BE HELD AT

SHOREHAM, L. I. - OCTOBER 12, 1907

Scientific Program:

1. CYSTOSCOPY AS AN AID TO DIAGNOSIS IN DISEASES OF THE BLADDER AND KIDNEYS - - - - - By Paul M. Pilcher
2. A CONTRIBUTION TO THE TETANUS INVESTIGATION By Calvin F. Barber
3. BRONCHOSCOPY. WITH DEMONSTRATION OF BRONCHOSCOPE. By Hubert Arrowsmith
4. SOME GENERAL EXPERIENCES IN OBSTETRICS - By John H. Barry

LONG ISLAND MEDICAL JOURNAL

A Forum for the Discussion of all Topics involving the Medical Profession and especially that of Long Island.

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PAUL MONROE PILCHER, A.M., M.D.
EDITORIAL OFFICE:
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Further information on advertising page 34

ASSOCIATED PHYSICIANS OF LONG ISLAND.

Address of President Terry at the meeting held at Patchogue, June 22, 1907.

IT is always pleasurable to offer congratulations. I have observed that our June meeting has always been deemed a fitting occasion for the chair to extend this courtesy and I take pleasure in following this time honored example. It is not so much the opportunity, as the ground for these felicitations that makes them worth while, but the fact that they are always generously offered and received, as a matter of course, may be regarded as an indication that they are deserved. I take all this as evidence not only of our prosperity but of the general good feeling existing; while this is chiefly expressed in June it continues throughout the year; such harmony and cordiality are greatly to our advantage, for they are essential to the vitality of a scientific body that does not cultivate science at the expense of sociability.

Though praised from its birth and brought to its tenth year on a diet of approbation, our vigorous offspring does not seem to have been spoiled. We may be sure, however, that there have been much earnest thought and firm discipline bestowed on it by those who have nursed it and watched it grow and planned for its future usefulness.

It would be much easier for an officer anxious to do his duty to be satisfied if the standard set for him had not been so high. But your President has taken comfort in the reflection that as the law does not require us all to possess the highest skill, the Association will be equally lenient.

This thought has been especially consoling, when the chair has remembered that of his two immediate predecessors, one, by his influence and energy proved our organization to be of such importance that the President of the country not only visited us, and addressed us, but was delighted with the opportunity, while the other, among other useful recommendations, showed us how to own and successfully manage a medical journal of which we are justly proud—a journal in which the most modest practitioner as well as the most eminent teacher among us may make known his observation and experience wherever this publication is permitted to carry the English language. It is well for us all to bear in mind that this journal, which has been highly complimented both as to its high character and admirable appearance, must depend for its permanence not only on its excellence, but on the size of its subscription list. I believe we should regard the journal as our pet project and support it enthusiastically in every possible way.

A problem has arisen as to the disposition of the books and exchanges which come to the journal. Should they be preserved by the Association as the nucleus of a future library or should they become the property of the reviewers? It has been thought best that the Association should keep them and the Kings County Library has kindly consented to act as the custodian. With the abundance of medical books already there, it is generally conceded that they are not in any way needed at the library.

If it were not that our Island was inconveniently broad as well as sufficiently long, there can be no question that the books would be more useful if located out on the Island. Even with the present communications I would recommend that consideration be given to any fairly centrally located town on the Island where the books are wanted and where there are proper library facilities.

I have no new departures to suggest to the Association, but rather advise the holding fast to the good that we have done; to this end each of us should assist as opportunity offers those upon whom the work temporarily devolves.

As contemplated at the time of their appointment I would recommend the continuance of the committees on the local diseases of Long Island, until their work is completed. The reports already made are impressive and profitable, and they have received favorable editorial comment from New York medical journals.

I would recommend that at least one subject of local diseases of Long Island be taken up each year. This may be extended to appropriate health matters that are of special interest.

As uncooked shell fish in other localities, where the conditions and method of culture followed are quite different from those on Long Island, have been known to produce typhoid fever, I believe the interests of producers and consumers alike would be served by a thorough investigation of the subject.

We were told at our last meeting that if we wished to avoid typhoid we must boil everything. The luscious bivalve on the half-shell, like surgeons' hands, cannot be conveniently sterilized by heat. I would suggest the following subject: *The Sanitary Management of the Shell Fish Industries on Long Island—A Study of Present Conditions—A Report on any existing Abuses—Recommendations as to the Most Practical and Economical Solution of the Problems Involved."*

Referring to the work of our Association, I should like to impress upon all who are or who may hereafter become members of committees, that long duration of membership, surpassing ability, extensive practice, good fellowship, loveliness of character, and charming personality, will not atone for lack of active interest, and I suggest that the "irreducible minimum" requirement of a committeeman be promptness in answering letters. I may add, however, that while there have been some complaints from the chairmen of committees about deliberation in correspondence, they have neither been serious or numerous, and an allusion to them at this time is partly justified by the desire of the chair to find something to criticize in order that he may not seem to have neglected his duty.

There is perhaps no more cherished possession of our Association than its independence. The County Societies gain their influence through their affiliation with the State Society, both of which societies have in the fullest degree the benefit of our influence and co-operation. A peculiar charm and one of the most noteworthy characteristics of our Association is its individuality, and this it is that has made it attractive and led to the position it now occupies.

It has been observed that among men, no sooner does one gain standing or make a reputation than someone wishes to share it. Solicitations of this kind, however flattering, are not always to be heeded. Our eligibility rules are too broad to lay us open to any charge of exclusiveness, while strict enough to make membership valued and prevent our organization from becoming too large and unwieldy.

I have been told that the question has been raised of having our association amalgamated with another organization. I think there is but one answer to this question. Let us carefully avoid all entangling alliances and take no chances of dividing our interests or losing our identity.

THE LATE PIERRE BUDIN AND HIS WORK.

ON the 23rd of last January there died in Paris, Pierre Budin, who will be remembered for many years as one of the first and most successful movers in the campaign against the French infant mortality. Over a generation ago Roussel, by the enactment of a law preventing the indiscriminate traffic in wet nurses, struck a blow at the primary cause of this serious menace to the prosperity of France. At that time Pierre Budin was just completing his medical studies, but he had already made such a reputation for zeal and energy that his fellow students declared it useless to compete for appointments that he coveted. This man was destined to take up the problem that Roussel had studied with good results; but he approached it from such a different point of view that his methods and teachings are in some respects diametrically opposed to those of Roussel. This is particularly emphasized in Budin's recent book, "The Nursling" (English translation, p. 125), where he deprecates the fact that the law of Roussel forbids any woman with an infant under 7 months of age to act as wet nurse, claiming that many such mothers might nurse two children and save both. In his enthusiasm he loses sight of the fact that in the days of Roussel a very large per cent. of the wet nurses so employed allowed their own infants to starve in order to satisfy their employers.

Budin will always be known as the founder of the "Consultations for Nurslings," the first of which he organized in 1892 in connection with his obstetrical service at the Charité. The work was later carried on at the Maternité, and it was brought to its present high level at the Clinique Tarnier, to which Budin had been appointed. The original "Consultation," in 1892, was the result of a systematic effort to preserve the health of the infants born at the Charité by having the mothers bring them back periodically for inspection, weighing and advice. From this small beginning the "Consultations" and "Gouttes de Lait" have spread over the continent, and during this month of September—12th to 16th—the second "Congress International des Gouttes de Lait" is being held in Brussels.

A system that has met with such general favor throughout Europe is certainly worthy of careful study in this country, and nowhere could a better spot be found than here in this Borough of Brooklyn. Although attention has frequently been called to the fact, the profession at large does not seem to be aware that in this "city of homes" the summer infant death rate from diarrheal diseases is much higher than in crowded Manhattan. Yet the statistics are published year after year. The most recent figures—for the four weeks ending July 27th—are as follows:

Deaths from diarrheal diseases under five years: Manhattan, 451; *Brooklyn*, 612.

Many beneficent agencies are at work in Brooklyn, supplying proper food, pleasant outings, and medical attendance for sick babies, but practically nothing is being done for the systematic care of well infants or for the instruction of their mothers. One commercial house has done more than all the other agencies put together in this line, while incidentally exploiting the infant food which it manufactures.

The great secret of the success of Budin's work was its simplicity and common sense. His paraphernalia consisted of scales and a sterilizer, but to these was added an enthusiasm that inspired confidence. Once a week from birth, or from the time that they first apply, the infants are brought to the Consultation. A card index contains all the essential facts of age, weight at birth, and weekly weights thereafter, together with notes on the food. In this way the infants are kept under strict watch, the mothers are constantly instructed in proper methods of care and the food is changed from time to time as indicated. A very useful feature of the work is the friendly rivalry that is excited among the mothers to see which baby shall gain the most and look the best, week after week. The extraordinary decrease in death rate in some cities resulting from the establishment of Consultations is sufficient proof of their practical value.

To the American practitioner the almost universal use of undiluted boiled milk for children of all ages comes as a revelation. Its use may explain in a measure the great frequency with which wet nurses are employed in Europe. Perhaps many of the children for whom a wet nurse is considered a necessity would thrive on modified cow's milk if greater attention were paid to its modification. On the other hand if in this city a group of normal bottle-fed infants was supervised from the time the bottle was brought into use, it is probable that nearly all would thrive on whole milk carefully administered. The very general custom of boiling milk on the continent seems strange, and we have visions of innumerable cases of infantile scorbutus. Strange as it may seem scorbutus is a rare disease in France. Broca, in a recent lecture on this disease, says: "These cases are rare in France, but frequent in England and America, where flourishes a mania for infants' foods more or less complex in character." To understand the reason for sterilization it must be remembered that refrigeration is practically unknown on the continent, and that milk production, as a rule, receives almost no sanitary supervision.

Louis C. Ager.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

THE proceedings of the 85th and 86th annual meetings of the Medical Society of the County of Kings have recently been published, together with a list of the officers, committees and delegates for the year

1906-1907; also a list of members corrected to April 15, 1907, and the Constitution and By-Laws amended and adopted January 15, 1906.

This small volume is one of the most important and most interesting which has ever been published by the County Society. If one has never realized the inner workings of the Society, he has but to carefully read the present report to appreciate not only the work which the Society is doing, but also the interest which certain men are taking in the success of the Society. It is to be remarked as well, that the names of certain members appear repeatedly, showing their activity in more than one phase of the Society's work.

The membership for the year 1905 shows a loss of thirty-three members and a net gain of forty-seven members. The report of the Committee on Directory for Nurses shows that nearly one hundred new members have joined the Directory during the year, and that the Directory has been entirely self-supporting. During 1906 the Membership Report of the Society shows a net gain of twenty-nine members, despite the fact that the dues for resident members were increased three dollars to meet the assessment of the Medical Society of the State of New York.

The Report of the Milk Commission is very interesting and should be read by every one.

CORRESPONDENCE.

Epidemic Anterior Poliomyelitis.

September 3, 1907.

To the Editor of the Long Island Medical Journal.

Dear Sir:

As Brooklyn seems to be passing through an epidemic of acute anterior poliomyelitis, it would be a work of practical scientific interest to tabulate some of the facts in regard to the subject.

Is the condition general or is it confined to certain localities?

Is it confined to the poorer classes?

Does a clinical study offer any solution of the problem of etiology?

What is the prognosis? etc.

Doubtless other phases of the problem will suggest themselves to other observers. I would be very glad to receive and tabulate any facts that are forwarded to me, and due credit will be given in a report to be published later. I trust that you can find space for this note in the next issue of the Journal.

Yours truly,

Louis C. Ager.

MEDICAL NEWS.

Prize Essays—The Merritt H. Cash Prize of $100 will be awarded in 1908 at the annual meeting of the Medical Society of the State of New York, and every three years thereafter. The subject of the prize essays may be taken from any of the contributing parts of medical science and practice, and must be original so far as to constitute an advance in our knowledge. Candidates for the prize must be members of the State Society.

The Lucien Howe Prize of $100, either in money or in the form of a suitable medal, will be awarded at the same time, and every two years thereafter, for the best original contribution to our knowledge of some branch of surgery, preferably of ophthalmology. The author or discoverer need not be a member of the State Society, but the communications shall be made first through the Committee on Prize Essays and shall remain the property of the Society, to be made public as it shall direct. All communications must be typewritten or printed, and the only means of identification shall be a motto or other device. The essays must be in the hands of the Chairman of the Committee, Dr. A. Jacobi, 19 E. 47th St., New York City, on or before December 15, 1907.

Swedish Hospital—On May 24th the Board of Directors passed the following resolution: "The Swedish Hospital is open to care for any patients, either surgical or medical, and physicians properly vouched for may treat their patients in the Hospital and use the private wards and private rooms."

Dr. and Mrs. Frank E. West sailed for Europe on July 2d.

Dr. Willard Parker died in New York on June 24th. He was graduated from Columbia University in 1866, and took his medical degree from the College of Physicians and Surgeons in 1870. Dr. Parker's exceptionally pleasing personality endeared him to a host of warm friends; and Long Island physicians who did not enjoy the privilege of an acquaintance with the man himself will long hold the name of Dr. Willard Parker in grateful remembrance owing to the generous gift, less than a year ago, of the entire medical library of several thousand volumes collected by his illustrious father, which he presented to the Library of the Medical Society of the County of Kings. A brief sketch of this library was published in the March number of the JOURNAL.

Dr. Glentworth Reeve Butler and family sailed for Europe early in July.

A Medical Night School, chartered under the name of the Hippocratean College of Medicine, has been established in St. Louis. The regular course will begin September 3d, and regular sessions will be held five evenings each week, from 7 to 11 o'clock, supplemented with three or four hours of clinical work on Saturday afternoons. This experiment of providing facilities for procuring a medical education on the part of those who are obliged to work for their livelihood during the day time will be watched with interest. If this school is successful in St. Louis, and the real need of such an institution is demonstrated, it may be expected that similar institutions will be established in other large cities.

Dr. George McNaughton expects to return from Europe September 10, 1907.

Dr. Henry P. de Forest and Mrs. de Forest are on a walking tour in Germany. When last heard from they were in Goettingen, after having completed a 200-mile tramp in the Hartz Mountains. Dr. de Forest expects to be absent from the city about two months.

Dr. James T. Pilcher has left Vienna and is tramping in the Tyrol. During the past year he has been devoting himself to the study of general diagnosis and pathology, and diagnosis and treatment of diseases of the gastro-intestinal tract. He is expected to return to this country this fall.

Dr. T. R. French has been spending the summer at Camp Interlaken, Spitfire Pond, Franklin County, New York.

District Nursing Committee—The District Nursing Committee of the Brooklyn Bureau of Charities makes its annual appeal for support to continue its work of caring for the sick poor of Brooklyn in their own homes. The record of the work accomplished by the District Nurses during the years of 1905 and 1906 is as follows:

	1905.	1906.
Number of patients ..	1,169	2,761
Number of nursing visits	9,669	12,081
Number of friendly visits	1,435	1,754
Number of First Aid treatments	2,403	4,201
Number of births....	59	50
Number of deaths ...	63	79
Number transferred to hospitals	165	200
Number dismissed cured	973	1,189

The District Nursing Committee asks the physicians of this city to respond to one or two calls in a year, to needy patients living within easy reach of their offices. In return they are glad to respond, as far as possible, to calls from physicians for the services of a visiting nurse in attending patients who are not able to procure a trained nurse. Those physicians who are willing to help the needy poor in this way may write to Miss Mary B. Fennessy, Superintendent of Nurses, 67 Schermerhorn St., Brooklyn, and allow their names to be put upon the list of those willing to render such slight services to the poor. It is a worthy charity, and with a more hearty cooperation on the part of the physicians a great deal of help could be afforded in places where it is most needed.

Brooklyn Post-Graduate Medical School—In October the school will begin its second year of work. The attendance since January 1, 1907, has been very satisfactory. A number of new courses will be given in Surgical and Medical Diagnosis. The number of students allowed in each section is to be limited. Applications for places in these special courses must be made directly to the Registrar.

Death from Headache Powder—During the past month another death has been reported from an overdose of acetanilid in the form of headache powder. Edward White, forty years old, of 194 Pearl St., Brooklyn, died in St. Gregory's Hospital shortly after taking one of the headache powders. The coroner's report has not yet been received.

Condemning Foul Milk Cans—The enforcement of Chapter 610 of the Agricultural Law, as amended on July 18th, has caused consternation among city dealers. The new law provides for the appointment of inspectors to see that all town milk dealers thoroughly clean all milk cans before returning them to the country dairy; if the cans are found dirty, the amendment provides for the seizing of the milk cans and their condemnation. After examining four hundred milk cans up to midnight of August 6th, Deputy Commissioner Krackery found one out of every ten to be dirty; some contained floor-sweepings, stale bread, particles of meat and other foreign matter. The effect of the enforcement of this law will be watched with interest.

OCTOBER MEETING

Shoreham - October 12, 1907

TRANSACTIONS

OF THE

ASSOCIATED PHYSICIANS OF LONG ISLAND.

Twenty-eighth Stated Meeting, held at Patchogue, L. I., Saturday, June 22, 1907.

The President, A. H. Terry, M.D., in the Chair.

The meeting was called to order and the minutes of the previous meeting read and approved.

The President then read his address (for which see page 385), which was referred to Drs. Delatour, Ross and Browning as a committee to report later on the recommendations contained therein.

ELECTION TO MEMBERSHIP.

The following men were elected to membership in the Association:

Wm. H. Ross, Sayville.
Grant Stanley, Sea Cliff, L. I.
Frederick Foster, Mineola, L. I.

Brooklyn.

Philip Manecke, 1058 Bushwick Ave.
Daniel C. Mangan, 95 Park Ave.
Willis H. Philleo, 155 Herkimer St.
Alfred Potter, 523 Twelfth St.
Jerome B. Thomas, 171 Joralemon St.
Franklin Bennett, 686 Greene Ave.
Rudolph L. F. Herriman, 1083 Bushwick Ave.
Henry Joachim, 591 Putnam Ave.
Lewis P. Addoms, 278 Halsey St.
Charles E. Manning, 480 Putnam Ave.
Wm. C. Schirmer, 596 St. Marks Ave.
Ver Nooy W. Weed, 1238 Halsey St.
August G. Horstman, Jewish Hospital.

The report of the Board of Directors was then read.

Dr. Hancock gave notice in writing of his intention to propose at the next meeting an amendment to the By-Laws.

SCIENTIFIC SESSION.

1. Paper: "The Technic of Office Gynecology," by Dr. George McNaughton, Brooklyn.

2. Paper: "Some Points in the Preventative Gynecology of the General Practitioner," by Dr. Robert L. Dickinson, Brooklyn.

Discussed by Drs. Jewett, Polak, Baldwin, Pomeroy and Hyde. Closed by Drs. McNaughton and Dickinson.

EXECUTIVE SESSION.

The Committee on the President's Address reported as follows:

1. As to the library matter, the disposition of exchanges and books, the committee recommends the appointment of a committee of three to look into the matter of the proper disposition of books and exchanges, and that the By-Laws be changed to provide a standing committee of three from the Island to be known as the Committee on Library.

2. The Committee endorsed the President's suggestion, that the Committee for the Study of Local Diseases be continued, and recommends for the present year the consideration of the subjects and suggestions made by the President in his address, and, further, approves that there be some special study of the shell-fish industry and its sanitary protection.

3. The Committee unanimously endorses the President's suggestion, that this Society remain an independent organization.

By vote of the Association the report was amended to the effect that that portion relating to the Library, instead of being referred to a separate committee, be referred to the Committee on Publication. The report and the amendment were adopted.

The resignation of Daniel A. Goodrich, Flushing, was received and accepted.

Adjourned.

James Cole Hancock,
Secretary.

TRANSACTIONS
OF THE
BROOKLYN GYNECOLOGICAL SOCIETY

A. A. Hussey, M.D., Editor.

Stated Meeting, April 5, 1907.

The President, R. H. Pomeroy, M.D., in the Chair.

CARCINOMA CLITORIS

Dr. John C. MacEvitt, presenting a specimen of carcinoma of the clitoris, said that we often find carcinoma of the labia majora, but rarely that of the clitoris. Two years ago the patient commenced to feel an irritation about the meatus. She consulted quite a number of physicians, who pronounced the disease specific. She was given both constitutional and local treatment.

Three weeks ago she visited the speaker at his office. He removed two small portions of the growth for examination, and the pathologist reported that it was a squamous celled carcinoma and of a rather vicious type.

She entered St. Mary's Hospital. The speaker made a triangular incision, the angle of the incision being above the clitoris, extending from the mons veneris on a level with the meatus over the opposing labia minora. He introduced a male sound, so as to be able to dissect it off the urethra, carried his incision in very deep, divided the crura and on the right labium majorum. As he thought that to be involved he removed it as well. He brought the upper incision, which was quite deep, together with silkworm gut sutures, and the surrounding lips of the meatus he sewed to the integument. As the integument was brought together it closed around the meatus, and he stitched the edges to the integument, and then with a running catgut suture united the labium minorum from which it was removed, stitching the integument to the vaginal wall. The vaginal wall was absolutely free from any infection. He then introduced a catheter into the bladder and made it fast to the thigh with adhesive plaster, for the purpose of avoiding too much meddling on the part of the nurse and the avoidance of dribbling of urine over the parts.

There was one very important feature that appealed to him. The speaker said that, of course, we find inguinal glands inflamed, but not always infiltrated with carcinoma. These glands were not very large and were not near the infected portion. It was a question whether he ought to remove them or not. He deemed it better to let them remain and watch them carefully, and if in the future they did not subside, he could remove them in a reasonable time. He believed the glands were inflamed and not infiltrated with the carcinomatous cell changes. The woman presented no systemic cachexia. She was 45 years of age, and seemingly in perfect health outside of this local condition.

Dr. John O. Polak said that he had never seen a case of carcinoma of the clitoris, but had operated on several carcinomata of the labia, and the only one, in which he did not remove the inguinal glands (they showed no evidence of infection or extension), recurrence promptly took place, and he believed with the genito-urinary surgeons who, in operating for carcinoma of the penis, make a large semi-circular incision, to include the entire inguinal glands. This is the better plan to pursue, even though the glands show no evidence of extension, as Ries, Kelly and others have shown. These glands frequently do have cancer cells in them, and it is a wise precaution to go a little bit further for that reason.

Dr. William E. Butler was inclined to believe with Dr. Polak. If, he said, you have a palpable gland, the presumption is it is infected with carcinoma; not that it is simply inflamed. He should have been inclined to have removed the glands in this case.

Dr. John C. MacEvitt said that it was impossible to remove all these glands. You can remove those that are palpable, he stated, but the inguinal glands that are almost imperceptible you cannot remove. In removing carcinomatous uteri, Kelly at one time advocated very seriously the removal of all the glands. He has ceased to do that. It is an impossibility. If a gland is enlarged, why remove it, of course, but where they are very small and some distance from the site of the infection, it is a question whether it should be attempted. It would be carrying radicalism to the extreme. In this case he believed it would be wise in the course of three or four weeks to remove one of the larger glands to see if there was any sign of infiltration.

TUBAL ABORTION

Dr. William E. Butler, presenting a specimen, gave the history of his patient. She was 38 years old and had never been pregnant before. Ten years ago she was operated on for an abscess in the abdomen, since which time an artificial anus has been present. She gave a history of menstruating regularly. In February she menstruated eight or ten days after her normal time. It recurred at intervals of two or three days.

When he saw her, March 27th, she was bleeding very profusely. The blood poured out of the uterus in a tremendous flow. Elevation of the pelvis seemed to stop the flow of blood. He examined her and found a small mass on the right side of the uterus, not very large, and from the history and from experience he made a diagnosis of tubal gestation going about four weeks over the time.

She was operated on March 28th. The tube was about the size of a small lemon. The gestation part was in the end of the tube. In getting it out he squeezed the clot and something was forced out. In mopping out the clots on a sponge he brought out the specimen. The woman made an uneventful recovery and was sitting up at the end of a week. The peculiar circumstance was, that the two or three weeks' old fetus is in the sac and was sponged up intact.

There was nothing done with the artificial anus.

OVARIAN CYST

Dr. William Butler presented a specimen of a large ovarian cyst. The patient, 32 years of age, two children, married eight years. About two years ago she noticed some swelling on the left side, gradually getting larger, but within the last five months the swelling increased enormously and very rapidly, so that when he saw her the abdomen was distended. The pulse and respiration were increased. She was partly cyanotic from pressure effects. The legs were swollen and she had albuminuria.

The speaker saw her yesterday and advised immediate operation on account of the dyspnœa. She was removed to the Williamsburgh Hospital where operation was performed. After the incision was made the anterior of the cyst was found to be adherent to the abdominal wall, and a great deal of bleeding was caused in separating the adhesions. The cyst was tapped with a large trocar and about 3 gallons of fluid taken away. The fluid was of a chocolate brown color and rather thick. Two or three other cysts tapped had each a different kind of fluid. He expressed the sac, broke up the adhesions, and tied off a small pedicle. The interesting point to him was the thickness of the adhesions to the abdominal wall anteriorly and to the omentum. The tumor weighed about 45 pounds.

In reply to a question, Dr. Butler stated that there was no free fluid in the peritoneal cavity, and that the cyst was not papillomatous.

CAESAREAN SECTION; UTERINE INERTIA CAUSED BY VENTRALLY SUSPENDED UTERUS

Dr. John O. Polak said that this patient was admitted to his service in the Methodist Episcopal Hospital on March 11, 1907. She was 35 years of age, married one year, and pregnant for the first time. In 1895 she had had the left ovary removed and a ventral fixation made in the Flower Hospital, New York. Suppuration followed, but she made a fair recovery without any hernia which was appreciable during this pregnancy.

On admission she was suffering from a toxemia of pregnancy and was kept under observation from March 11th. Though a primipara, with ample external measurements, the fetus was found lying transversly, and as the pregnancy neared to term, it became an oblique presentation, the head being in the left lumbar region, the breech in the right iliac fossa. The fetal heart was heard to the left and above the umbilicus. The internal pelvic diameters were normal. During the 10 days following admission she made marked improvement, except for continuous headaches, the urine keeping up, while ten days ago she developed an albuminuria, and the total quantity of urea dropped to 95 grains. She was put on an anti-nephritic diet, but notwithstanding conscientious attention to diet, Basham's mixture and nitroglycerin, the urea never rose to over 100 grains in twenty-four hours during the last ten days. The quantity of urine never exceeded 32 ounces, the headaches and epigastric pain persisted.

A week ago Drs. Dickinson and Pomeroy examined her with me and the following conditions were found: The urinary condition as stated, the child was found lying with its head in the left lumbar region, with the breech in the right iliac fossa on vaginal examination. Even by introducing the whole half hand into the vagina, the cervix could not be found at first.

The cervix was found pointing upward and backward with its anterior lip 6¼ inches from the pubic arch, the vaginal wall drawn taut in longitudinal folds. The cervix was about two inches above the promontory of the sacrum. The necessity for interference because of her kidney condition was apparent, and the question was what was the best thing to do. We decided to elect Cæsarean section. The operation was done March 30. She went through it very well and has a living baby.

A high incision was made. No stretching of the anterior wall or fundus had taken place, or that portion of the posterior wall which had been involved in the fixation. The posterior wall was distended as an immense uterine bag, with no contractivity, and even after it was emptied it seemed as though it never would contract to stop the hemorrhage. From this incision he attempted to pack gauze into the vagina and stop the hemorrhage. With his whole hand in the uterus he found where the cervix was, and Dr. Humpstone was able to get a pair of forceps into the cervix by the vagina and withdraw the gauze down.

This was another case, the speaker said, similar to the one in Dr. Pomeroy's service, where fixation had necessitated a Cæsarean section. He said that by abdominal examination it was very interesting to note the position of this cervix, because it was even higher in its relation to the vertebra than it seemed by the vaginal exploration. Incision was made above the umbilicus. The placenta was attached to the posterior wall.

Dr. Polak took out the right tube with the consent of the family and thus terminated the possibllities of future pregnancy.

INTESTINAL OBSTRUCTION DUE TO ABDOMINAL WALL ABSCESS

Dr. John O. Polak said this case came into the Williamsburgh Hospital with twelve days obstipation and two days of fecal vomiting. The woman was ballooned up to a considerable extent. She had a pulse of 120, with a temperature of 101, and on examination she presented rather a different picture to the ordinary intestinal obstruction. A tumor, as large as one's head, protruded out of the abdomen, which was distinctly circumscribed. Below this on the right side she had a large inguinal hernia the size of one's fist, which was perfectly reducible. There was no dullness in the flanks. This mass moved with the abdominal wall, and there was a red streak down the front of the abdominal wall.

Dr. Matheson saw the case first and made a diagnosis of suppuration. About an hour afterward the speaker saw the case with him, and operated by simply making an incision down the red line; he emptied a quart of pus from an abscess between the peritoneum and the muscle. With the relief of the abscess and the abdominal tension, the patient seemed to be more comfortable, and that night and the following morning passed gas, and had a natural movement of the bowels without a cathartic, and has made a satisfactory recovery. The speaker said he had never before seen an abdominal wall abscess stop the movement of the bowels. He did not know the cause of it.

ACUTE DILATATION OF STOMACH FOLLOWING OPERATION

Dr, William E. Butler reported the case of a woman 36 years old, who had passed through several normal labors, but with the present pregnancy the doctor thought there was some trouble with the ovary. The speaker found a large mass in the cul-de-sac extending up to the umbilicus, and made a diagnosis of ectopic. The menses had been fairly regular during the entire time. She had not gone over the usual period of two or three days.

At the operation he dilated the cervix to take out the decidual mass, and afterward opened into the cul-de-sac to confirm the diagnosis, when a little blood escaped. He then opened the abdomen and removed about a four months' pregnancy. There was an abdominal pregnancy with the placenta attached to the abdominal wall, the sigmoid flexure, the posterior surface of the broad ligament and uterus and the rectum, practically an abdominal pregnancy. The woman had no particular pain at the time when the rupture must have taken place.

The child's heart beat for about fifteen minutes after being removed from the abdomen. The woman went along for the first twenty-four hours in good shape. Her pulse then went up to 140 and 150, the temperature remained at 100, the respirations were 40 to 50, and within forty-eight hours the pulse was about 160 and the respirations 53. The abdomen was obliquely distended. It was not a universal distention as we get in a tympanitic abdomen. It was a dome-shaped distention extending below the umbilicus, and you could make an impression on both flanks, showing there was no serious distention of the intestines. A stomach tube was passed, and about a gallon of fluid removed with marked relief. Her respirations came down considerably and her pulse improved. The stomach was again irrigated. He gave her twenty grains of calomel and opened the bowels from below, and she finally recovered.

Dr. John C. MacEvitt said that five weeks ago there was a similar case in St. Mary's Hospital. There was not only fluid, but some escape of gas after the tube was introduced. It was supposed to be peritonitis then. The speaker thought it would be well for gentlemen in post-operative cases where they get this distention to bear in mind this very great distention of the stomach which simulates peritonitis because of the acute pain, and it is hard to differentiate between them.

TRANSACTIONS

OF THE

BROOKLYN SURGICAL SOCIETY.

Regular Meeting, May 2, 1907.

The President, O. A. GORDON, M.D., in the Chair.

RUPTURE OF ULCER OF THE SMALL INTESTINE.

DR. J. C. KENNEDY reported the case of a man, 45 years old, who on February 25th of this year, while lifting a heavy weight, "felt something snap in his abdomen," and was immediately seized with intense abdominal pain followed by collapse, in which condition he was brought into St. Mary's Hospital.

The patient was a well developed and well nourished man; his abdominal wall was rigid and he was suffering from shock. The right inguinal canal was filled with an incarcerated knuckle of intestine, which later seemed to reduce itself under ether anesthesia. This fact, coupled with the man's previous negative history, obscured the diagnosis at this time, but the abdominal rigidity indicating intestinal rupture made a laparotomy imperative; hence an incision three inches long over the inguinal canal exposed a bulging hernial sac, tightened at the internal ring. The incision was carried through the ring and the sac opened, when there was a gush of gas accompanied with considerable light colored material, which proved to be fecal matter mixed with peritoneal fluid. The abdominal wound was extended upward, leaving, however, some connecting tissue between the lower hernial and upper abdominal incision, although connecting both incisions in the skin and superficial tissues.

On opening the peritoneum upward, the appendix was found thickened and somewhat congested; this was removed. A portion of the small intestine was found collapsed; they were searched in the way usually adopted, and well on the left side of the peritoneal cavity, low down, was found a coil of the ileum with an opening on its convex border the size of the end of the little finger, that is, on the border opposite the mesentery. The mucous membrane of the perforated intestine was in situ; its muscular coats were thin and ragged. This opening was closed in the usual way, the abdominal cavity cleansed of quantities of fecal matter, a radical cure for hernia was done, and the abdominal wound closed.

It is held by Boas and others, the speaker stated, that intestinal ulcer frequently occurs without any symptoms whatever, proving the correctness of their statements by the presence of intestinal ulceration at autopsies, in cases which had given no appreciable symptoms during life. This was evidently true in this case, because up to the moment when this man's ulcer broke through the serous coat of the intestinal wall his previous history was perfect.

In the opinion of the speaker this patient had a dormant catarrhal ulcer, so far at least as symptoms were concerned, and at the time of lifting this heavy weight, both from contraction of the abdominal wall and intra-abdominal pressure, the knuckle of intestine containing the ulcer was forced into or against the internal ring, thereby tearing the thin serous coat, which up to this time had protected the peritoneal cavity from the assault which great muscular effort later brought about, and which seriously threatened the patient's life. The character of the ulcer is the question of interest in this case. The patient's history, if correct, is entirely negative; hence it is safe, from an etiological standpoint, to exclude as causative factors the acute infectious diseases, such as typhoid fever, acute dysentery, sepsis, etc., as also the chronic diseases. Richter's hernia might also be excluded, because this form of hernia occurs more often in the femoral ring, although it does occur in the inguinal canal occasionally, but in no case is it without symptoms, at least in his experience.

INFANTILE LABIAL AND BUCCAL CAVERNOUS ANGIOMA.

Dr. J. C. Kennedy presented a female child, one year old, who was born with a small growth on the left cheek close to the angle of the mouth, the exact nature of which he was unable to ascertain, but it was presumably a congenital nevus. When seen by him two months later, it had grown enormously, involving the angle and half of the left side of the lower lip, extending to a small portion of the upper lip on the same side, thence advancing to and involving the greater portion of the left inner cheek, to and on the upper alveolar process. The bulging outward and inward of the tumor rendered it not only an inconvenient, but a hideous deformity. It was bluish in appearance, soft to the touch, easily compressible, and raised far above the surface in its entire extent; this, with the apparent thinness of its purplish walls, made it appear to him at least a moderately formidable affair.

The indications for treatment in these cases, are two-fold: the cosmetic and the symptomatic. In this case the symptomatic treatment was most urgent, first because of the interference with the proper ingestion of food in consequence of the rapidly growing vessels daily narrowing the cavity of the mouth, and secondly because of the danger of the thin walled tumor being ruptured, causing a probably fatal hemorrhage by being crowded between the alveolar processes of the upper and lower jaws.

These tumors may be composed of arteries or of veins, or of both arteries and veins. In the arterial or plexiform or mixed variety of angioma, tying off the main arteries of supply and then excising the tumor would be the operation of choice, provided, however, that the location would permit. Had this tumor been of the plexiform variety, the tying of the coronary arteries and then dissection of the tumor with the loss of considerable blood might have been tried, but being situated largely in the mucous membrane and superficial skin and of the cavernous variety, this method, in his judgment, would not avail. The child was at that time weak and anemic, so that loss of blood would have been of serious moment. The cautery point plunged into the tumor, as recommended, at various points, hoping to bring about coagulation, would have caused, in all probability, a hemorrhage, the condition which he dreaded most. A cautery snare could not be used, because the tumor was too flat.

With the child under somniform anesthesia, and a gag on the opposite side of the mouth, a straight Bozemann forceps was passed into the mouth, and with the blades open, the index finger of the left hand on the outer cheek easily pressed much of the vascular tumor between the blades as they were slowly closed with the right hand. With the blades snugly closed, the tumor was under absolute control for the present, so far as hemorrhage was concerned. The redundant vascular tissue was not cut, but slowly burned down with the largest cautery point until within a short distance of the closed blades, which, on being opened, disclosed a solid eschar, which did not bleed except at or near the lock of the forceps. This small point which the cautery did not reach was readily closed with a catgut suture. Several days after when the eschar fell off, there was some little oozing, which was easily controlled by boric acid compresses. The small superficial vessel, which is now seen on the lower lip, developed a month after the operation. Eleven months have now gone by and it does not seem to extend. It will be removed in the near future, unless it should entirely disappear, as sometimes happens as the child grows older, particularly after treatment has once been instituted.

Warren and Gould speak of angioma of the upper lip in a child ten years of age, which was treated at the Children's Hospital, Cincinnati. Reduction was effected only after treatment of a year and a half with electrolysis, seton, and a puncture with the thermocautery.

LACERATED WOUND OF THE STOMACH AND PLEURA.

Dr. B. B. Mosher reported the case of a boy, nine years old, who, on May 2, 1906, while standing on top of a fence where the pickets were very long, sharp iron pointed (six inches above the rail), lost his balance, and in order to save himself from falling forward, jumped backward and to the right to avoid these sharp pickets, but was so close to the corner of the fence, that he landed breast high on the fence that ran at right angles to the part on which he had been standing. His position was nearly horizontal after he was impaled on the picket. He was carried to his room, and Dr. Mead, the family physician, was called. The boy's condition was not bad, pulse good, little pain, no temperature. The doctor realizing, however, the possibilities, asked the speaker to see him in consultation, which he did some five hours after the injury. At that time the boy was lying comfortable in bed, facial expression good, some vomiting, coughing, expectorating blood, pulse 120, temperature 101, had little or no pain, but food was oozing through a small opening in the epigastric region. An antiseptic gauze dressing was applied, and he was removed to the Skene Sanatarium for operation. The anesthetic was given, during the first part of which he coughed, raising blood, vomited mucus, and quantities of undigested food fountained out through the wound, accompanied by a considerable bubbling of air.

An incision followed up the course of the picket, which had torn away the tisues at the end of the left of the sternum, including some of the muscles. Large quantities of green paint were adherent to the torn tissues. When the quantity of undigested food had been sponged away, the tissues exposed, he found he had to deal with a lacerated wound of the anterior and cardiac end of the stomach. The picket had extended on to the pleura, the lower part of the lung, out between the eighth and ninth ribs in the mid-axillary line, not including the skin. The wound in the stomach was irregular, lacerated and three inches in length. The edges were trimmed, sutured with chromicized catgut, over which two rows of Lembert sutures were placed. The wound in the muscles and soft parts over the stomach was closed with deep silk-worm gut sutures. A drain was carried from behind the cardiac end of the stomach out through the pleural cavity between the ribs. The boy stood the operation well. The first few days were indeed stormy, as the boy was badly spoiled. He expectorated quantities of blood and vomited some dark colored blood. On the second day he developed pleuro-pneumonia in continuity with the injury. His temperature ranged as high as 104, his respirations 45; pain was so much as to make the liberal use of morphine necessary to control the boy at all, but briefly, suffice it to say, with all these vicissitudes he was able to leave the sanitarium twenty-eight days from the time of admission. There was a small opening into the pleural cavity, which continued to discharge for a few days longer, but when it closed his temperature soon rose; there was dullness over the left lower pleural cavity, and the needle showed pus. The operation for excision of a portion of a rib was performed and drainage established, and the boy made a rapid recovery. On July 15th he had perfectly recovered.

EARLY RECOVERY AFTER LAPAROTOMY.

Dr. Russell S. Fowler, in presenting several patients, said that the dressing he uses in certain cases of laparotomy has been a Scultetus of adhesive plaster, and the patient allowed on the second or third day to walk around. This plan he adopted after studying the results of the work done by Ries and Boldt. The first strip of adhesive plaster is placed very low down and most of the support is given from the pubis to the umbilicus.

The *first patient* presented was operated on April 4th, an abdominal incision in the median line for double ovarian cystoma, each cyst being about the size of an orange. The appendix was removed for recurrent appendicitis. She sat up on the first day and second day, and on the third day was out of bed and walked around. The reason for not getting her out of bed earlier was that she has a mitral regurgitation, and he hesitated a little about getting her to walk around too soon. She is still wearing an adhesive plaster support. He leaves the adhesive plaster on for two weeks and then reapplies it, always using a Z. O. plaster of the best grade. Cheap Z. O. plaster is dangerous, as it stretches unequally.

The *second patient* was operated on the third day of an attack of appendicitis. The appendix was greatly inflamed, and there was some evidence of peritonitis. This case sat up on the second and third day and walked around the room on the fourth day, much against her wishes; she did not want to get up. In the last case the original dressing was left on until the seventeenth day.

The *third patient* was operated on April 4th, the operation being a panhysterectomy, with vaginal drainage, for a left intraligamentous cystoma, with small fibroids of the uterus and a right pyosalpinx. She walked around on the first day, that is, the day following the operation. There has been no interference with the wound. She left the hospital at the end of the fourteenth day.

The *fourth patient* was operated on April 10th, right rectus operation for acute appendicitis. The appendix was very adherent, the base too friable to invert, and it was sewed over with chromic catgut. He walked about on the first day, and had a perfect result.

The *fifth case* was operated on April 10th, right rectus incision for acute appendicitis. The appendix was very adherent and wrapped about with omentum. Part of the infected omentum was removed with the appendix, to avoid rupture. He walked around the following day. All of the cases show perfect results.

EXCISION OF HEAD OF HUMERUS.

Dr. Russell S. Fowler presented a patient, who seven years ago had a fracture—dislocation of the head of the right humerus. The speaker saw the man three weeks after his injury. The dislocation had not been reduced. Reduction being impossible, he made an incision, and even then could not get the head of the bone in position, so he excised it. He presented the man to show what surgery could do for such cases. The result is functionally perfect.

EPITHELIOMA OF THE TONGUE.

Dr. F. C. Paffard reported the case of a man 59 years old, who had a regular, small papule on the right margin of his tongue fairly near the front. He did not know it was there until one day he had a fainting attack, due to overloading of his stomach, and while washing the stomach out the speaker found this growth on the tongue. While the man was debating whether he would have the tongue removed, another tumor appeared on the other side, and Dr. Paffard took out the anterior portion of the tongue. He should have taken the whole tongue out but for the fact that the man had a double heart murmur, and he did not seem to stand the anesthetic very well. He did very well afterward, and was able to talk, although rather more than the anterior half had been removed.

The chief point of interest in the case, and what permitted him to articulate so well, was the fact that he had a plate of false teeth in his upper jaw, from which a little projection reached down and somewhat backward from the roof of the plate, so that he could approximate the stump almost to this projection, and he was able to talk very well indeed. He went along for about a year after the operation, and then had a cerebral hemorrhage and died. He lived in a house with a good many people, and none of them ever knew that his tongue had been removed.

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THE VALUE OF THE OPSONIC INDEX AS A GUIDE IN THE TREATMENT OF BACTERIAL INFECTION.*

By CHARLES BOLDUAN, M.D.,

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HISTORICAL.—As far back as 1858 Haeckel had observed that particles of indigo injected into the veins of certain molluscs could shortly afterwards be found in the blood cells of the animal. However, the significance of this and other similar observations was not appreciated, until Metchnikoff in 1883 called attention to their bearing on infection and immunity. The outcome of his investigations was the establishment of the well-known doctrine of *phagocytosis,* the principle of which is that the leucocytes attack and destroy the micro-organisms which have invaded the tissues. Metchnikoff's theory of immunity found but little acceptance, the more so since the studies of Nuttall, Pfeiffer, Behring, Ehrlich and others demonstrated a great variety of protective substances present in the sera of immune animals. As time went on Metchnikoff also realized that the serum constituents played an important part in the destruction of bacteria, but he interpreted this action as being a stimulation of the leucocytes, and he spoke of these substances as *stimulins.*

In 1903 A. E. Wright, of England, discovered certain constituents in blood serum which acted on bacteria and rendered them more easily taken up by the phagocytic cells. He called this substance *opsonin* and showed that it was present in normal serum and in the serum of infected individuals, though in the latter, as will be discussed directly, it varied considerably from the average normal content. By means of absorption tests, modeled after those of Ehrlich and Morgenroth, he showed that the opsonin has a specific affinity for the bacteria and none for the leucocytes. The opsonins for staphylococcus prepare only staphylococci, those for tubercle only tubercle bacilli, etc. If perfectly fresh, washed, normal leucocytes are mixed with a bacterial emulsion, phagocytosis is very slow, so slow in fact that at the end of fifteen to twenty minutes at 37 degrees c. the cells may still be empty. Under the influence of a serum containing opsonin the same leucocytes would have loaded themselves with bacteria, as can be seen by examining such a parallel control. It may be added that the leucocytes are believed by Metchnikoff to be the source of the opsonins. This author shows that the leucocytes act as phagocytes even without free opsonin, only it takes them longer to do it. The work of Hektoen seems to have clearly established that opsonins are distinct antibodies and not identical with bacteriolytic immune bodies. In the further study of these opsonins Wright developed the idea that they were highly important in combating a number of bacterial infections, and soon published observations on the opsonins in tubercle and staphylococcus infections. His observations showed that inoculations of the corresponding bacteria produced marked changes in the opsonic content of the infected individual, and that it was possible to estimate accurately the immunizing effect of such inoculations. At the present time he has correlated all these observations and built up a system of treating bacterial infections by means of active immunization controlled by opsonic measurements.

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*Read at the 477th Meeting of the Brooklyn Pathological Society, May 9, 1907.

TECHNIQUE. Wright's technique of measuring the opsonic power is a slight modification of the Leishman[1] method and is as follows: An emulsion of fresh human leucocytes is made by dropping twenty drops of blood from a finger prick into 20 cc. normal salt solution containing one per cent. sodium citrate. The mixture is centrifuged, the supernatant clear fluid removed and the upper layers of the sedimented blood cells transferred by means of a fine pipette to 10 cc. normal salt solution. After centrifuging this second mixture the supernatant fluid is pipeted off and the remaining suspension used for the opsonic tests. Such a "leucocyte emulsion" of course still contains an enormous number of red blood cells; the proportion of leucocytes, however, is greater than in the original blood. One volume of this emulsion is mixed with one volume of the bacterial suspension to be tested and with one volume of the serum. This is best accomplished by means of a pipette made by drawing a capillary end to a glass tube. With a wax-pencil mark about three-quarter inch from the end, it is easy to suck up one such volume of each of the fluids, allowing a tiny air bubble to intervene between the different fluids. All these are now expelled on a slide and thoroughly mixed by drawing back and forth into the pipette. Then the mixture is sucked into the pipette, the end sealed in a flame, and the whole put into the incubator at 37° C. The identical test is made using a normal serum in place of the serum to be tested. Both tubes are allowed to incubate fifteen minutes and then examined by means of smear preparations on slides spread and stained in the usual way. The degree of phagocytosis is then determined in each by counting a consecutive series of fifty leucocytes and finding the average number of bacteria ingested per leucocyte. This number for the serum to be tested is divided by the number obtained with the normal serum and the result regarded as the *opsonic index* of the serum in question. The presence of a high index Wright regards as indicative of increased resistance. He further states that fluctuations of the opsonic index in normal healthy individuals is not more than from 0.8 to 1.2 and that an index below 0.8 is therefore diagnostic of the presence of an infection with the organism tested. It should be stated that for the normal control Wright usually employs a mixture of several normal sera, thus seeking to secure a fair normal average.

BACTERIAL INOCULATIONS. Wright's method of treating bacterial infections is based on the following premises: In localized infections the infected body absorbs but small amounts of bacterial substances or antigens. In consequence of this the amount of active immunity developed is but slight. Localized infections therefore tend to run a chronic course. The logical method of effecting a cure in these cases is to actively immunize the body with the invading organism.[1] In a number of infections, notably those of staphylococcus, streptococcus, and tubercle the degree of immunity is measured accurately, according to

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[1] Leishman, British Medical Journal, January, 1902.

[1] It is difficult to understand on what grounds Wright uses the bacterial inoculations in systemic infections such as a malignant streptococcus endocarditis with organisms in the blood. According to the above premises a systemic infection should already have flooded the body with so much antigen that an additional inoculation would be contra-indicated.

Wright, by the opsonic power of the blood serum, i. e., by the opsonic index. He believes it is almost impossible, by mere clinical observation, to determine whether or not the bacterial inoculations are producing increased immunity; that this is comparatively easy by means of opsonic measurements.

The bacterial inoculations consist of suspensions of agar cultures in normal salt solution. These suspensions are heated to 55 degrees or 60 degrees C. for twenty minutes in order to kill the organisms, and then receive small additions of carbolic acid or lysol as preservatives. Cultural tests are made to ensure sterility and the "vaccine" counted so as to determine the dose. This is readily accomplished by means of a small capillary pipette such as is used for the opsonic test. A wax-pencil mark is made on the capillary tube and then one such volume of the vaccine to be tested, and one volume of blood taken from a fresh finger prick (an air bubble intervening) are sucked into the pipette. The two fluids are thoroughly mixed by sucking back and forth on a slide and the mixture then spread on a slide in the ordinary way for blood smears. After staining it is comparatively easy to ascertain, by counting through a ruled ocular, the proportion of bacteria to red blood cells. The latter being regarded as 5,000 million per cc., it needs but a simple calculation to give the number of bacteria per cc. So far as dosage is concerned one employs from 300 to 500 million in the case of staphylococcus, from 50 to 100 million in the case of streptococcus, etc.

ORIGINAL INVESTIGATIONS.—The experiments here reported were directed by Dr. W. H. Park and carried out by a number of the workers, including the writer, at the Research Laboratory of the N. Y. City Health Department.

In counting a consecutive series of 50 or 60 leucocytes, as is done by Wright and his pupils, one cannot help being struck by the enormous differences in phagocytic power exhibited by the different leucocytes. Thus, using a perfectly homogeneous emulsion of staphylococcus with which the average of several hundred cells will be 5 or 6 bacteria to the leucocyte, it is not at all uncommon to find a number of cells having as high as 20 or 25 bacteria, and cells containing no bacteria at all. The staining characteristics of these cells give no indication of any difference, both are apparently perfectly normal leucocytes. The difference in the total count of 50 cells when several of these loaded cells are or are not encountered is obvious. From the first, therefore, it was felt that the counting of merely 50 leucocytes was subject to too large fluctuations to be really accurate, and all the work from which the conclusions in this paper are drawn was therefore done with counts of from 150 to 200 leucocytes. The following table gives an idea of the divergence in the several fifties occasionally encountered when counting 200 cells:

	EXAMPLE 1.		EXAMPLE 2.		EXAMPLE 3.	
	Total in Fifty.	Per Cell.	Total in Fifty.	Per Cell.	Total in Fifty.	Per Cell.
First fifty..............	94	1.88	100	2.00	78	1.56
Second fifty............	84	1.68	101	2.02	46	.92
Third fifty.............	67	1.34	115	2.30	95	1.90
Fourth fifty............	57	1.14	138	2.76	72	1.44
Average for the 200 cells		1.51		2.30		1.45

The same is shown in the following table in which 350 cells were counted:

First fifty.....	2.82	aver.	No. bacteria	per cell
Second fifty...	1.96	"	"	"
Third fifty....	2.06	"	"	"
Fourth fifty...	2.38	"	"	"
Fifth fifty....	2.48	"	"	"
Sixth fifty....	2.70	"	"	"
Seventh fifty..	1.88	"	"	"
	2.32 average of 350 cells.			

We have many protocols, to be sure, in which these divergences are not so marked. It is doubtful, though, whether in a long series of cases the difference between an average based on 50 cells and one based on 200 cells can be made much less than 20 per cent. We would, therefore, say that a count of 50 cells may give a rough indication of the count; 100 cells probably a pretty fair approximation; while a count of 200 cells usually indicates very closely the conditions prevailing in that particular test.

Attention was directed next to the opsonic indices of apparently normal individuals, and it was soon realized that, at least so far as tubercle, staphylococcus and streptococcus are concerned, the indices often differ very widely in different individuals. This is shown by the following table which shows the opsonic index in two normal individuals day by day. In order to facilitate comparison the same person has always been regarded as 1. The method of testing and the entire technique was that developed by Wright and demonstrated in this city by him and his asociate, Dr. Ross. The average counts, however, are based on 200 leucocytes instead of but 50, as is usual with Wright. The organism tested was a staphylococcus aureus.

TABLE I.

Fluctuations in Opsonic Power in Two Normal Sera.

DATE.	RATIO.	DATE.	RATIO.
Dec. 19	1—1.57	Jan. 6	not done
20	1—1.32	7	1—0.90
21	1—0.82	8	not done
22	1—0.76	9	1—1.40
23	not done	10	not done
24	not done	11	1—1.65
25	not done	12	1—0.92
26	1—1.16	13	not done
27	not done	14	1—1.06
28	1—0.92	15	not done
29	1—0.82	16	1—1.19
30	not done	17	1—0.91
31	1—1.83		
Jan. 1	not done		
2	1—1.18		
3	1—1.18		
4	1—0.90		
5	1—2.50		

With fluctuations as great as those here shown it seems absolutely unscientific to take the average of two or three such "normal" counts with which to compare the test serum. Other observers have had similar variations, though in some instances, at least, they have not hesitated to take the average of even widely different counts. The following is another example of such variations, three normal persons being used as a control. This is also a staphylococcus case:

Average count for patient's serum	11.97
“ “ “ control A	13.40
“ “ “ “ B	9.03
“ “ “ “ C	6.14

What the patient's opsonic index in this case really was it is hard to say.

There is still another source of discordant results as is shown by the following curious phenomenon. Instead of testing a given blood but once, two, three, four or more tubes of it are tested at the same time and under identical conditions so far as we can determine. The same is done with the control serum. The test can be made either by collecting a number of tubes of blood from the same individual, or by collecting but one tube and then making duplicate or triplicate tests on this specimen. The following table gives the results of one of many tests of this kind. The organism used was a staphylococcus aureus and the number of cells counted for each tube was 150.

PATIENT'S SERUM.

Tube 1.	Average per leucocyte	2.15
“ 2.	“ “ “	2.47
“ 3.	“ “ “	2.70
“ 4.	“ “ “	2.24

CONTROL SERUM.

Tube 1.	Average per leucocyte	2.04
“ 2.	“ “ “	1.87
“ 3.	“ “ “	1.85

From these figures it is possible to calculate indices ranging from 1.05 to 1.46.

These results are so surprising that we have repeated such tests again and again. In testing a given serum with, say, six or seven tubes one often finds many of the tubes giving very similar results. As a rule, however, one or two of the tubes will give counts far away from the average.

Other workers in this city have been

kind enough to co-operate with us in making tests of this kind; every one of these has reported results similar to the preceding. The following figures were obtained by an experienced opsonologist on numbered sera sent him by us. (Tests refer to tubercle.)

Serum No.	
1	2.1
2	2.1
3	3.1
4	3.3
5	1.6
6	2.35
7	2.16
8	2.98
9	2.90
10	1.40

The brackets indicate the sera which this observer regarded as identical. As a matter of fact, however, the first six sera were from one normal individual; the next two (Nos. 7 and 8) were from another normal individual; and No. 9 and 10 were from two patients. In this case one patient's index can be figured as from 0.55 to 1.13, and the other as from 0.42 to 0.87.

Reviewing the data presented above it is seen that the opsonic index of a given patient as it is usually obtained by Wright's method is far from accurate. The most that one is warranted in saying is that marked variations from the "normal" opsonic index probably indicate that the serum in question is "high" or "low" as the case may be. Variations of 0.2 or 0.3 or even of 0.4 are of very little value *provided one test only is made and only 50 cells counted.* To illustrate, an index of 2.5 undoubtedly indicates an increased opsonic power, an index of 0.4 or 0.5 a decreased opsonic power. But a change from 2.5 to 2.0 means very little, as also does a change from 0.5 to 0.8.

It is reasonable to assume that indices obtained by making two or more opsonic tests of the same serum and then counting 100 or 150 leucocytes represents very nearly the true condition of the individual's serum. The amount of labor involved in such a test is, of course, considerable and cannot ordinarily be expended in a given case. It was felt, however, that only in this way could one determine the accuracy of the principles underlying Wright's method of treatment.

According to Wright the inoculation of a bacterial culture is followed almost always by a period in which the opsonic index is lowered; this he calls the negative phase. Then, depending on the size of the dose, and on the reacting power of the injected individual, there is an increased opsonic power, the positive phase, or else a continuation of the negative phase. The former is obtained with proper dosage, the latter with doses too large or too small. An increased opsonic power goes hand in hand with clinical improvement.

The present study has shown that the inoculations are not regularly followed by negative phases and, in some animal tests made, even the inoculation of very large doses of dead cultures failed to produce negative phases. The following tables will suffice:

Dr. K. (case of Staphylococcus boils).
Index on Dec. 22........ 0.65
" " " 23........ 0.65
" " " 24........ 0.67
Injected at noon and serum tested again,
12 hours later, Dec. 24........ 1.31
" 25........ 1.10

Similar results were obtained on three consecutive injections.

Clinical Results.

Our clinical experiences with the bacterial inoculation method of treatment have in some instances been very satisfactory and in other instances quite the opposite. In several cases of multiple boils due to staphylococcus, the inoculations seem to have been of distinct value. It should, however, be emphasized that the clinical improvement was not paralleled by the opsonic index. Conversely also in some of the cases that did poorly, the opsonic index was regularly well above normal.

Altogether these observations indicate that the opsonic index is not necessarily a measure of the patient's immunity. This is not at all surprising to one who has followed the progress of imunity studies. When Gruber and Durham published their observations on agglutinins the phenomenon was at once hailed and interpreted by many as measuring the degree of immunity possessed by the patient. The same error was made when, some time later, the bacteriolytic substances were discovered. In both cases it was soon found that these were but accompaniments of greater or less significance to the complex phenomenon of immunity. It would certainly be surprising if the opsonic power were to be the real measure of the degree of immunity. When we consider how manifold are the defensive agencies which the animal organism possesses and how very complex they have shown themselves the more they are studied, we shall not marvel at the absence of parallelism between the clinical course of the disease and the opsonic index. We do not question that a study of the opsonic power may lead to a better understanding of certain phases of immunity. Apparently the opsonic curves do measure a certain fraction of the immunity reaction, and as such, possess distinct value. It is unlikely, however, that opsonic readings replace the ordinary clinical observations in measuring the effect of bacterial inoculations.

SUMMARY.—Measured in accordance with Wright's technique, one finds considerable variation in the opsonic power of serum from a number of apparently "normal" individuals.

In estimating the opsonic power the counting of only 50 leucocytes is insufficient. Good readings may, however, be obtained from 150 leucocytes.

For reasons not yet understood duplicate and triplicate tests made on the same serum, at the same time, and under apparently identical conditions, often yield widely divergent results.

Clinical results with bacterial inoculations do not always parallel the opsonic indices. Cases will do well with decreased opsonic index, and *vice versa*.

BLASTO-MYCELIAL DERMATITIS,

WITH REPORT OF A CASE.*

By **NATHANIEL P. RATHBUN, M.D.,**

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BLASTO-MYCOSIS may be defined as an infection of the organism by a characteristic fungus closely resembling and allied to the ordinary yeast fungus, and blasto-mycelial dermatitis as that type of the infection which shows a tendency to confine itself to the skin without metastases in the internal organs, and is characterized by single or successive *crops* of papules and pustules which go on to ulcer formation, showing little or no tendency to heal and containing the specific fungus.

It is typically an American disease. In fact, as late as 1903 no case had been reported outside of this country, and I have been able to find no record of any since that time (I refer now to blasto-mycelial dermatitis and not to generalized blasto-mycosis).

Infection of the human organism by fungi was first noted by Berg, in 1840, in a case of thrush or sprue. He demonstrated the oidium albicans in several cases and considered it the specific cause of the disease. His observations were soon confirmed by other observers. For a time it was supposed to be pathogenic only in the oral cavity, but it was later demonstrated throughout the digestive tract, and still later in metastatic processes throughout the body. Its presence in metastatic abscesses in the internal organs was, at first, considered by many pathologists, Virchow included, as only a coincidence, the real causative factor being the streptococcus and staphylococcus. It is now conclusively proven that in many cases the cocci are the coincidence and the fungi the real etiological factor.

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*Read at a meeting of the Brooklyn Hospital Club, February 4, 1907.

From the time of Berg's communication to 1894, a few fungi of the oidium group were demonstrated in various pathological lesions, such as pityriasis capitis, and even in sarcoma and carcinoma, but in no case were they shown to be specific. The fungi of the tineæ belong to a different genus but are closely allied.

In 1894, Busse reported a case of fatal pyæmia, produced by a yeast fungus which he called saccharomyces hominis. The disease began with multiple skin lesions, and after a long protracted course developed multiple abscesses throughout the body; the abscesses in all the internal organs yielded pure cultures of the organisms, which he described in detail, and which appears to be identical morphologically with the organism of which I wish to speak to-night.

The first report of a pure skin disease caused by the yeast fungus was made by Gilchrist in May, 1894.

In 1896, Wernicke and Rixford described a condition, with a report of two fatal cases, which they styled protozoic disease, and isolated an organism which they considered to be a protozoan, as the specific cause of the disease. Further observation seemed to show, however, that it was a fungus and identical with the saccharomyces hominis of Busse.

Ricketts, of Chicago, who has made, perhaps, a more thorough study of these cases than any other one observer, considers them identical also with the fungus of blasto-mycelial dermatitis. Why, in the one case, their activity should be confined to the skin, and, in another, should invade the deeper organs, cannot be explained; no more so than the fact that what appears to be the same organism shows different cultural peculiarities at different times.

Since Gilchrist's report of a case of blasto-mycelial dermatitis in 1894. these cases have been recognized and investigated by Ricketts, Hyde, Montgomery, Eisendrath, Hektoen, and other observers. The material has been scanty, but enough has apparently been done to establish the disease as a clinical entity.

Ricketts, in an exhaustive search of the literature, reports a total of twenty-six cases up to 1902. Including my own case, I have found nine cases reported since that time; no doubt there have been others, but I have been unable to find them. The disease is probably not as rare as this statement would imply, for doubtless many cases have passed unrecognized.

Seventy-five per cent of the cases have occurred in males and most frequently among the laboring classes. It occurs most frequently in young adults, but no age is exempt; it may begin on any part of the body, more often the face or extremities. Traumatism, in a few cases, seems to have been an exciting cause. A family history of tuberculosis has obtained in several cases, and a doubtful history of inherited syphilis in one.

The disease begins as a small red papule on and in the skin, more or less painful and tender to the touch; this progresses very slowly to pus formation and forms a pustule containing a glairy muco-pus and surmounted by a dry brown crust. A characteristic bluish-red areola appears with the pustule which is more or less extensive, somewhat boggy and tender to the touch; later it becomes studded with tiny yellow points which mark the openings of minute intra- and sub-epithelial abscesses. If the lesion progresses, the superficial epithelial layers are entirely destroyed in the centre, leaving a shallow, painful ulcer, varying in size from a pin-head to two or three inches in diameter, covered with a dirty grayish-yellow slough, usually with undermining edges, surrounded by the characteristic areola and showing little or no tendency to heal. Spontaneous healing does, however, occur occasionally, beginning with a clearing up of the centre of the ulcer and healing from within outward, the tumified areola being the last vestige of the disease to disappear. The resulting scar is at first gray, thick and leathery; later it becomes thin and pink, then white, and eventually closely resembles the surrounding skin and moves freely over the underlying tissue.

In some cases, the disease confines itself to one lesion, in others, there may be multiple lesions, usually close together; or, one lesion or set of lesions may follow on the healing of others in a sort of sequence; or, several lesions may entirely disappear with an apparent cure, only to reappear several months or years later in the old scar or adjoining tissue. The course is usually protracted, with, for no known reason, periods of intense activity alternating with periods of sluggishness in the individual lesions, or entire freedom from any trouble.

The prognosis, as to life, in those cases which are confined to the skin, is good. The general health may remain unimpaired; in fact, it sometimes happens, as in my own case, that the virulent exacerbations of the local lesions occur at a time when the general health is particularly good. In the protozoic disease of Rixford and the saccharomyces hominis of Busse, where the infection is general from the start, the course is rapid and fatal. Ricketts reports one case that confined itself to the skin for a number of years, when it suddenly invaded the lungs, producing all the symptoms and physical signs of acute pulmonary phthisis, except tubercle bacilli in the sputum (mycelia were found in great numbers) and became rapidly fatal. Ordinarily these cases pursue an extremely protracted course. A few cases have apparently been cured spontaneously; a few have been benefited and apparently cured by treatment; a few have relapsed some years later after an apparent cure, and a few have passed from under observation while still suffering from the disease, so that it is impossible to deduct any reliable data on the prognosis.

The disease has been and is most likely to be confounded clinically and pathologically with tuberculosis, carcinoma and syphilis of the skin, and it may, in its different stages, closely resemble various types of these diseeases. It differs from the verrucous type of tubercular skin lesions, with which it is most likely to be confused, in that the individual lesions are much more rapidly progressive, are of a more acutely inflammatory character, and there is very little tendency to invade neighboring lymph glands or the lungs. The converse, of course, is true of tuberculosis.

Some of the more sluggish lesions, when occuring singly, have been confounded with carcinoma. Here too the diagnosis is assisted by the inflammatory nature of the lesion, by the fact that it occurs most frequently in young adults, and that, in carcinoma, metastases take place in the lymphatic glands and internal organs.

It has been confounded with syphilitic lesions, chiefly, because it has been found to be improved by kali iodid, given internally and it is somewhat similar in its histo-pathology. However, a history of syphilis, either inherited or acquired, is exceptional; it is not amenable to treatment by mercury, it requires larger doses and a more protracted course of treatment with kali iodid to obtain results than in syphilitic lesions, and there are material points of difference in the histopathology.

While these facts assist in making a differential diagnosis, an accurate diagnosis can only be made by an examination of the diseased tissue, in sections, and a demonstration of the specific fungus.

A gross examination of a section of the diseased tissue shows two distinct layers: a thick, horny layer, and a soft, homogenous layer underneath. Under the microscope, the horny layer, which represents the cuticle, shows a great proliferation of epithelial cells, most of them undergoing what has been termed a carcinomatoid degeneration. The cells are seen in all forms and stages of cell degeneration; they are increased or diminished in size and distorted in shape. Very large epithelial cells are seen containing other smaller epithelia and numerous leucocytes, and closely resembling, and perhaps identical with, the so-called Plimmer's bodies, which were, at one time, supposed to play a rôle in the pathology of carcinoma. Giant cells resembling the giant cells of tuberculosis are often found. There are minute intra-epithelial abscesses filled with leucocytes and broken-down epithelial cells. There are unfoldings of the epithelial cells which, together with the Plimmer's bodies, accounts for the fact that the disease has been confounded with epithelioma by pathologists.

The corium shows a decided increase in the normal tissue constituents, increased vascuralization, etc. There is a general round cell infiltration, with an occasional giant cell, often closely resembling the picture of a tubercular lesion, and, most typical of all, minute abscesses containing leucocytes and broken-down red cells.

A few of the cases reported have shown the complete picture as outlined briefly above; others have not been so typical.

The organism, itself, may be obtained from the surface of the ulcer, but it occurs in greater numbers in the little abscesses; they are also found, occasionally, in stained sections of the tissue. They are best examined from a fresh smear placed on a slide with a weak KOH solution. They are spherical, non-motile, rather larger than an ordinary white blood cell, surrounded by a membrane over a homogenous substance, and containing in their centre a granular mass resembling a nucleus about one-fourth the size of the cell itself. They usually multiply by budding, occasionally by sporulation (those cases which multiply by sporulation show a tendency to systemic invasion, as in the protozoic disease of Rixford or the saccharomyces hominis of Busse). I shall not attempt to go into a discussion of the staining and cultural peculiarities, suffice it to say that they grow differently in different media at different times, several of Rickett's cases refusing to grow on any medium; the most generally suitable medium has been the potato. Inoculation has produced the characteristic lesions in animals, and a pure culture of the fungus has been obtained from the secondary infection.

It will be seen from the foregoing very brief description of the pathology that it has many points in common with other lesions, but it has a more or less characteristic pathology of its own and, of course, the fungus is pathognomonic.

The treatment is apt to be discouraging and unsatisfactory. Beran noted in three cases which came under his care that improvement followed the use of kali iodid, internally, given in large doses for a protracted period of time; he reports his three cases cured by its use. Other observers have used it with more or less gratifying results. The local treatment is purely surgical; the diseased area should be thoroughly and radically removed in practically the same way that a malignant growth would be removed, the wound thoroughly cauterized, and allowed to heal by granulation under a moist antiseptic dressing.

My own case is as follows:

Miss N. H., age 28, came under my care in August, 1901, when she was 23 years of age. At that time the history was as follows: Two sisters had died of rapidly progressive pulmonary tuberculosis; father and mother, two brothers and one sister living and well (the remaining sister has since died of pulmonary tuberculosis). Family history otherwise negative. Syphilis not considered at that time.

Her own health had been excellent until four or five years ago when several small papules appeared on the left ankle and calf. No attention was paid to these at first, but they persisted, grew larger, became tender and painful, and a few of them exuded pus. She consulted a physician who administered tonics, etc. Some of the lesions disappeared but others remained and broke down to form ulcers. She was then referred to a dermatologist who made a diagnosis of tuberculosis of the skin, and gave her cod liver oil, creosote, forced feeding, etc., and used various salves, washes and minor surgical procedures locally; she did not respond well to treatment, but after about a year of treatment off and on, she was apparently cured and advised to leave Brooklyn. She went South where she remained for about two years and then returned to Brooklyn. She continued in good health until a few months before she consulted me; at that time a papule appeared on the inner aspect of the right calf, which progressed rapidly to ulceration, notwithstanding treatment at the hands of a very competent man.

When I first saw her, she had an irregular ulcer about two inches in diameter with undermining edges, covered with a dirty gray slough, and surrounded by a violet-colored areola about one-half inch in depth, which was tumid and tender. There were several scars on both calves of former ulcerative proceses. The general health was excellent. Heart, lungs and kidneys negative. All manner of dressings, wet and dry, aseptic and antiseptic, were tried, but it seemed to resist all treatment; the overhanging edges were dissected away under cocaine anesthesia, only to find them further undermined a week later, and so on in a very discouraging manner. Specimens of tissue removed were sent to the pathologist who reported, as he did in several subsequent examinations of tissue removed at a later date: "round cell infiltration; giant cells; looks like tubercular tissue; no tubercle bacilli, but with the clinical history a diagnosis of tuberculosis seems warranted."

While this condition was going on in the large ulcer, other papules appeared on both lower extremities, some of which were apparently cured by applications of N. iodi, while others went to form pustules surrounded by the characteristic, tumid, painful, violet-colored areola.

Late in January, 1902, she was seen in consultation by an eminent dermatologist, who suspected a syphilitic complication of the "tubercular" condition and succeeded in eliciting a rather doubtful history of paternal syphilis; he accordingly recommended a very vigorous anti-syphilic treatment. This This was tried, but with no result other than to upset the digestive system and interfere seriously with the general health, so that it was discontinued.

Late in February the condition was getting rather worse than better, so the patient was placed under a general anesthetic and all the diseased areas, including the base and edges of the original ulcer, were very thoroughly and radically removed; the wounds were cauterized and dressed with 10 per cent. iodoform gauze. After this healing progressed slowly but surely, and late in June, 1902, she was once more apparently cured. She remained well until January, 1903, when another lesion appeared on the calf of the leg; this was treated by prompt and thorough removal, going well out into the normal tissue, and was followed by fairly prompt recovery. From that time until June, 1902, several other papules appeared which were treated in the same way with the same gratifying results. She removed to Virginia at this time, and I saw no more of her until June, 1905. During these two years, new lesions had appeared from time to time, most of them getting well spontaneously or with the aid of counter-irritation, applications of heat, etc. Several weeks before I saw her in June, 1905, another virulent pustule had appeared on the dorsum of the left foot. It had been incised, curetted and dressed by a physician in Virginia, but it became progressively worse, and when I saw her there was a sluggish ulcer about the size of a dime surrounded by the characteristic areola, etc.; this, together with the areola, was thoroughly excised, and healing progressed slowly but surely. However, before the wound was healed other places appeared near by, and so it went on for the next year and one-half; new lesions appearing occasionally in an old scar, occasionally in a new area, and occasionally what appeared to be a reinfection of a granulating wound. A further detailed history would be merely repetition. Suffice it to say that for the year and one-half preceding December, 1906, she was never more than four consecutive weeks without a dressing. She returned to her home at that time and I have heard nothing from her since.

During all these years, I went on contented with a diagnosis of tuberculosis of the skin. My attention was first called to blasto-mycosis by an article of Hekoten's in the Journal of the American Medical Association last fall, in which he reports two cases described in detail, together with some experimental work along the line of vaccine treatment after the manner of Wright of England. Either of Hektoen's reports would have answered almost perfectly for a clinical report of my own case. Accordingly, at the first opportunity, I brought Dr. T. H. Dexter, in the capacity of pathologist, with me to the patient's home. Smears were taken from a granulating wound from a fresh pustule, and from the raw surface of the diseased tissues, removed at the time with cocaine anasthetic. Cultures were taken on potato, agar-agar and gelatine, and a bit of tissue was preserved for staining. The smears examined immediately in a weak KOH solution showed large numbers of fungi, many of them budding. The cultures were all negative, with the exception of a diplococcus in the gelatine. The stained section showed a very general round cell infiltration, with a few fungi, corresponding in appearance to those seen in the smears. Unfortunately, the piece of tissue which I removed for Dr. Dexter's examination contained no epithelial structures, so that the histo-pathological findings were not typical; nevertheless, considering that the section was a poor one and that in several of Rickett's well authenticated cases, the findings were no more typical than my own, considering too the clinical history of the case and the undoubted presence of the specific organism, I feel warranted in making a diagnosis of blasto-mycelial dermatitis.

Kali iodid in increasing doses was tried, but it was so poorly borne that no results could be obtained.

The only lesson that I have learned during a five years' experience with this case is this: I believe the best treatment is prompt and thorough removal of the lesions as they appear, with moist antiseptic dressings for the resulting wounds.

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INSTRUCTIONS TO THOSE HAVING GONORRHEA.

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VERY few of the genitourinary dispensaries of New York issue circulars of instruction to their patients as to the general management of venereal diseases. In so far as the writer prepared such a circular and has found it of immeasurable value in his service both at the New York Hospital proper and the House of Relief (Hudson Street Hospital), in obtaining a reasonable respect for these diseases upon the part of the patients and a reasonable uniformity in their home treatment and management, it seems worth while to publish and discuss the topic.

No effort at originality has been made, because in such a matter no new thing may be presented. The effort is rather at emphasis of points often neglected and at statement of successful experience in clinical work, along the lines of this paper.

Many patients in going from dispensary to dispensary or from doctor to doctor will hear various terms used for the disease gonorrhea, and therefor feel that doubt exists as to its nature. Hence it is well to begin the circular with a list of these terms, as applied to gonorrhea, in order to prevent this confusion in the patient's mind.

Upon careful inquiry among his patients as they come from other dispensaries, he has been surprised to find that hardly any attention is paid to teaching the patient what the disease means to himself, his family and the community. The same remark may be made concerning not a few such patients as reach the dispensary from the hands of private practitioners. So far as instructions in these matters go these patients are likewise almost uninformed.

As to gonorrhea, therefore, one frequently hears patients state that they have a "slight attack" of, or a "touch" of the clap or gonorrhea, or are the victims of a "strain." Only a word or two of instruction carefully given will ordinarily be enough to inform these men and women that the disease has *no touches* and frequently *no slight attacks,* that like diphtheria, scarlet fever, typhoid fever, pneumonia and other infectious communicable diseases, even what appears to be a slight attack may develop during its course severe complications, or after apparent cure may be followed by grave results and sequels.

To treat a patient with the gonorrhea, man or woman, without so instructing him, constitutes in the writer's opinion a failure to live up to professional privileges and duties, consequently a brief paragraph at the beginning of the circular deals with and dismisses this important element in such a manner that each patient is taught in the same terms, thereby gaining in time and securing definiteness of instruction from patient to patient.

The public should know such facts as the following, which are now well recognized by the medical profession at large, namely that there is no tissue of the body which the essential germ of the disease, the gonococcus, may not attack, either by direct contact, as in the eye, nose, mouth, ear and rectum, or by indirect contact, through circulating in the blood, as the heart, joints and muscles, as examples. They should also know that invasion of the testicles and the ovaries by this germ almost always means loss of power in the part attacked thenceforth.

It is reasonably well established that 65 per cent. of all operations for abscess of the ovaries and tubes are due to gonorrhea. It seems also fairly well proved that a woman who has had gonorrhea of the uterus, tubes, and ovaries is forever sterile, whereas on the other hand a woman may have other forms of infection of these same organs and later on bear children.

After a paragraph thus emphasizing the importance of this formerly called "simple disease," the question of diet should be dealt with. It is surprising to see the number of patients who will leave all forms of intoxicating liquor alone excepting one, which is usually gin. They should, therefore, be taught that they must not drink any liquor whatever which contains alcohol, because it is the alcohol getting into the urine which increases the inflammation and aggravates and prolongs the disease. On the other hand, a large number of persons will think that soft drinks, whether highly spiced or not, are allowable. Quite to the contrary, such persons should be taught that it is the spices of these drinks which, getting into the urine, similarly does harm and delays cure. Tea, coffee and cocoa, while decidedly less irritating to the inflamed parts again through the urine, should also be specifically forbidden. One finds many patients who have been instructed not to take coffee, but are given permission to drink either tea or cocoa, although there is doubtless very little difference among the three as to undesirability.

The question of exercise is another important detail, and one finds a wide range in variation of instruction, private and public, so that many patients cease all work, although they have others dependent on them. As a matter of fact, only the violent exercises should be avoided, such as bicycling, horseback riding, running and gymnasium work. The exercise due to following the ordinary trades and labor, for example, does not harm, especially if a well-fitted suspensory bandage is worn by the men.

A highly important detail of instruction, which is either only touched on or totally neglected is the question of sexual excitement. Most men and women in the midst of an acute gonorrhea abstain from intercourse, but it is amazing to see the great number who will subject themselves to more or less violent degrees of indirect sexual stimulation due to hugging, kissing and other forms of fondling, mentionable and unmentionable, so that to all intents and purposes they have harmed themselves quite as much as though actual contact had been had. Positive instruction should be given upon the damage and the dangers of this indirect sexual excitement that is all-important, and yet is so often neglected. A few words of explanation and a few questions will commonly convince the average patient that he only increases any symptoms, and that continuance of the disease follows disobedience.

Uniform and adequate teaching as to washing and dressing the affected parts should also be given. It is amazing to see the number of men, for example, who even from physicians' care will present themselves wearing a pledget of cotton which precisely defeats nature's best endeavor to throw off the poison by means of the discharge, which, plainly speaking, is as a matter of fact the expression or sign of nature's efforts to cure the disease. The cotton merely bottles up the discharge within the urethra, thereby directly allowing the germs to penetrate more deeply, and obstinately chronic gonorrhea to ensue, with its slow train of complications and sequels.

Another equally vicious way of receiving the discharge is into the so-called "gonorrheal bag," from the sides of which the germs and the pus are wiped by the penis as the patient walks, thus more or less perpetually infecting himself. Both the foregoing methods accomplish one thing, namely, they keep the clothing clean, but do the patient a great deal of harm. Most patients even in the dispensary will instantly grasp the meaning of this harm when properly told. The only proper dressing for the uncircumcised male is a piece of gauze about 7 inches square, with a small hole cut at the center through which the penis is passed, after the foreskin is retracted until the glans is entirely through, then the foreskin is pushed forward over the gauze and the glans. This dressing will receive all the discharge without obstructing any of it in the urethra, as cotton does, and if changed three or four times each twenty-four hours will keep the clothing entirely clean. In the circumcised, the same dressing is used, made a little larger and passed over the penis to its base, where it is pinned to the margin of the suspensory bandage.

The danger which dressings of any form may be to the family and the community is scarcely understood by even intelligent patients, therefore explicit instructions should be given always to burn them. The readiness with which the pus clings to the fingers, and may by them be transferred to other mucous membranes of the body, notably that of the eye and that of the rectum, is not as fully explained as it should be, consequently, one should never fail to tell these patients that the hands and finger nails should be carefully cleansed whenever a dressing is changed or urine is passed. When this fact is widely and fully understood we shall have still fewer cases of gonorrhea of the eyes, rectum and vagina in infants and children of tender years. Doubtless the vast majority of gonorrhea of the vagina and uterus in little girls, which forever renders them sterile, and not infrequently invalidates them, has its origin from the fingers of mothers and nurses who have the disease.

Likewise, for the reason of possible communication of the disease to an innocent person, it is doubtless preferable that the one infected should sleep alone. If this cannot be attained he should certainly be taught to sleep always on the same side of the bed.

A more easily carried out detail for the prevention of transferring the disease to innocent persons is that of toilet articles. All those that are handled by the patient frequently and personally should not be used by other persons, particularly such as towels and washcloths.

The drinking of plain water is exceedingly important and one should explain to the patient that its purposes are at least twofold, namely: first, to dilute the urine so that the various substances therein, all of which tend to make the urine acid and irritating to the inflamed parts, lose part of their power to do so; second, to increase the urine in quantity so that the patient is passing his water frequently enough to keep the parts washed reasonably clean from within. This is merely a step to aid nature's own efforts in this direction, as shown by the discharge.

Practically all patients are told to drink water but very few understand why and therefore many do not do it understandingly. The patient is hardly ever likewise told that this water drinking should stop about six hours before bedtime so that the increase in the urine will cease and his sleep be uninterrupted by calls to empty the bladder.

Care of the bowels is a factor that few practitioners reach until after the patient has become constipated and speaks of it himself. Many of the internal medicines of value in gonorrhea are somewhat constipating, and likewise is this particularly true of the milk and light diet advisable in its early stages. It, therefore, seems worth while to state in a circular of instruction to those having gonorrhea that one movement per day should be secured, if necessary with the aid of a small dose of Rochelle salts or other salts in hot water before breakfast. Physicing is not required but the patient will be far better off if his bowels move each day. Commonly one finds each patient to know a cathartic in kind and dose which suits his purpose absolutely.

Rules for diet should be rather specific and may be dismissed by a single paragraph in the printed instructions to the effect that during the violent stages of the disease milk, toast, butter, eggs, fish, oysters, clams and chicken are the best diet. After the disease has improved the doctor's advice should again be sought as to changes therein.

A few words should also be added as to keeping reasonably quiet after working hours. It is neither possible nor necessary for the average victim of gonorrhea to give up his trade or business during his cure. It is, however, a decided gain if after the excitment of the day's work or business is over he will go home and remain as quiet as possible.

While it is distinctly true that medicine taken inwardly is of less value in curing the disease than those employed upon the affected parts it is, however, absolutely necessary that such medicines as are prescribed to be taken inwardly should be used regularly, because it is necessary to keep the body and the diseased organs as evenly under their influence as possible. A single sentence to this effect in the circular of instruction is of great value.

It is a matter of lament that very few patients understand the importance of coming to the dispensary and the office with a suitable specimen of urine for inspection. The cause seems to be that the medical profession at large is not yet fully aware of the value of the various two, three and four glass tests in gonorrhea, nevertheless, a great deal may be accomplished by telling each patient that it is more important to come with the bladder full of urine and to void it in the doctor's presence than it is to come with a long story of symptoms. The signs given by the urine are unmistakable, whereas the most intelligent patient may misinterpret his own symptoms. A few words should, therefore, be included in the printed pamphlet in order to teach the patient that at each call the doctor should examine the urine which he passes at the call and that there should be as much of this urine as he can comfortably hold.

The matter of the simpler complications is of first importance and probably none receives more meddlesome attention than chordee. The average layman seems to think that the proper thing to do in the presence of chordee is to exert pressure to overcome the erection. Not infrequently one finds, therefore, the penis either ruptured or very badly damaged by an effort to carry out this crude form of treatment. Directions absolutely against these steps should be given, together with what constitutes the proper treatment, namely, the wrapping of cold wet cloths about the penis until the erection subsides. after which the bladder should be emptied. The patient may be told also that occasionally a chordee may be stopped very early in its progress by seizing the thighs at their inner and upper aspect and pinching them very severely. The steps of this manipulation consist in causing an irritation of the crural branch of the genitocrural nerve which may be sudden enough to overcome the irritation in the genital branch proceeding from the inflammation.

The question of the frequency of treatment is of next importance. In most cases those do best who are seen frequently so that the various symptoms and complications are treated at the earliest possible moment. As far as dispensary patients are concerned, the best results are obtained by three visits per week, and in private practice the best outcome by daily visits. In both dispensary and private work this frequency should be maintained as long as there is abundant discharge and the likelihood of new symptoms.

Sooner or later in the course of the disease most physicians use a hand injection. Perhaps not one element in the treatment of gonorrhea in the male is so important as the determination of when to begin to use the injection and how to use it; consequently the tendency of the average patient to procure and use an injection from a drug store should be combated by stating in the circular that a hand injection should not be used before the physician directs. One sees from disobedience of this request a great deal of harm constantly done. One also sees a large variety of patients ignorant as to the manner of taking the injection, namely, the man who thinks that the more force he uses the greater the penetration of the medicine and the quicker the cure. Such complications as generalized folliculitis follow his efforts in a few days. Then there is the man who argues if one syringeful will do good two, three or four will do proportionately more good. Prolongation of the disease through chemical irritation of the urethra is his prize.

Next there is the man who tries to limit the extension of the injection backward by pressing upon the urethra at some definite point, usually in the crotch. Failure of result usually follows his efforts for the reason that commonly he cannot then inject the medicine at all successfully.

Although the directions for giving a hand injection should be printed they had best be in the form of a separate circular in order to correct the tendency of most patients to begin the injection of their own volition and not under the doctor's directions. The circular as originally published by the New York Hospital embodied the instructions for injecting and it was found that a large proportion of the men would report at a drug store and pick up any form of injection the druggist thought they could pay for and proceed. The results may well be imagined. Such separate instructions for taking the hand injections should tell the patient:

First, always urinate before taking the injection in order to wash as much pus from the urethra as possible.

Second, never use force in taking the injections, but rather on the contrary be as gentle as possible.

Third, never use a syringe that does not work smoothly, because a "kicking" syringe prevents gentleness.

Fourth, never use more than one syringeful at one injection unless specially ordered by the doctor.

Fifth, fill the syringe, hold it tightly against the mouth of the penis and gently fill the passage until it feels as full as it does when urine is passing through it. In other words, no pressure greater than nature's own during the act of urination is either necessary or desirable.

Sixth, hold the injection in 5 or 10

minutes by the watch (time to be specified by the doctor).

Seventh, after cure never loan the syringe to any one else, but rather destroy it, in order to avoid poisoning anybody with it.

The prospect of cure of gonorrhea is probably the most difficult question the doctor has to answer for the patient, and the writer never gives a promise of cure without having the patient explain what he means by the word "cure." In other words, the writer always tells the patient that if by "cure" he means cessation of pain, burning, chordee, visible discharge and the like, the result will be obtained in two or three weeks. If, however, he means a total return to health of the part as it was before becoming infected, the result will be obtained in a much longer time. The writer also adds that such health means a total absence of shreds or floaters in the urine, and that the presence of floaters means in the majority of cases that not only is the man still diseased with reference to himself, but still capable of transferring the disease to any virtuous woman whom he may marry.

Of more importance to the community are the questions whether a man may marry at all and when he may marry. The writer always answers the question, "When may I marry?" by saying, "Not until all shreds are out of the urine, and then not unless repeated tests have shown absence of the germ of gonorrhea—the gonococcus." To the question, "Is it safe for me to marry at all?" the writer always states after the tests have been made and have resulted favorably: "All the tests known to be of value to the medical profession have been made and show that you are probably well, but there still remains a chance that germs lurk in you in parts not adequately reached by the tests. The responsibility of that single chance is *yours,* not mine and not that of the science of medicine. You incurred that responsibility when you caught the disease by your own voluntary acts." It seems to the writer that any medical man is unwise to allow a patient to believe that such responsibility is any one's but his own—as it is in deed and in truth!

Many may say that these instructions are too detailed. In reply to this criticism I would say that the epitome thereof is printed on a single sheet of paper 5x8, of which the following is a copy.

Before the introduction of these circulars it was almost impossible to get the patients of the New York Hospital and House of Relief Venereal Classes to take reasonable care of themselves. Since their introduction, not only do the patients adhere more faithfully to the directions, but the results are better and the attendance has steadily grown. For example, the first night when the writer was appointed to the office of Chief of the Venereal Class at the House of Relief there were thirty-five patients. During the first year of the use of these circulars the average attendance reached eighty-two per night, and one hundred and thirty as a maximum.

The following is an epitome of these instructions in circular form, and is strongly recommended to those who have large bodies of these patients to handle.

INSTRUCTIONS FOR THOSE HAVING GONORRHEA.

This disease is also called *clap, claps, drippings, drips, runnings, woman's fever* and *strain.* All these names mean the one and same disease.

Your disease is not a simple but a serious matter, and requires great care by the doctor and strict obedience to directions by you in order to restore the organs to perfect health. It is, therefore, necessary that you do with faithfulness what the doctor orders. If you do not it is possible that the disease will produce later in your life serious conditions in the bladder and kidneys, for example, which may not only damage your health, but also threaten your life.

Gonorrhea is a communicable disease, and in order to avoid infecting other persons, and in order to prevent such complications as bubo, swollen testicles, abscess and stricture, the following rules should be observed:

Do not drink any liquor whatever that contains alcohol, because the alcohol in the urine damages the diseased part.

Do not drink any spicy soft drinks like ginger ale and sarsaparilla, and do not eat peppery or spicy foods or pickles, because all these substances in the urine damage the diseased parts.

Do not drink tea, coffee or cocoa for the same reason.

Do not take violent exercise like bicycling, running, rowing and the like. It is, however, not necessary to stop work at your trade or in your business.

Do not indulge in any sexual intercourse whatever until pronounced cured by the physician, because the disease may be given to a woman even after the visible discharge has ceased and because erection of the penis always makes the disease worse.

Do not indulge in any sexual excitement whatever, such as kissing, fondling and "playing" with women, because even this form of sexual gratification always prolongs and aggravates the disease through the erection of the penis usually caused by it.

You must wear a well-fitting army and navy suspensory bandage.

You must wash and dress the penis with the gauze apron at least three times a day as directed by the doctor.

Do not use cotton over the mouth of the penis, because it corks in the discharge, and do not wear the so-called "gonorrheal bag," because it soon becomes smeared with the pus inside and is then dangerous.

You must always burn all soiled dressings.

You must always wash your hands after dressing the penis, because the discharge is blinding, and may be carried to the eyes and to innocent parties, such as children, by fingers dirty with the pus.

You must sleep alone, or always on the same side of the bed, and be particularly careful that no one else uses any of your toilet articles, particularly towels and wash cloths.

Your bowels should move once each day. If you are costive take in hot water before breakfast a small dose of rochelle salts, for example, to secure an easy movement during the day. Physicing yourself is not necessary.

You must drink plenty of water to dilute the urine, and to increase its quantity, thus washing away the discharge.

Stop the water-drinking five or six hours before going to bed, so as to secure complete rest from emptying the bladder during sleep.

You must eat chiefly toast, bread, butter, eggs, fish, oysters, clams and chicken, unless otherwise directed by the doctor.

You must remain reasonably quiet.

You must take the medicine regularly as directed.

You must treat the chordee by wrapping cold wet cloths about the penis, and after the erection has subsided by emptying the bladder. Never force the erection down, as you may rupture the penis.

You must come for treatment with as much urine in the bladder as possible at each visit, so as to pass it in the doctor's presence for his examination. This is very important.

You must see the doctor at least three times a week, or oftener, as he directs, so that he may relieve promptly and quickly any new symptoms as soon as they arise.

Shreds or floaters in the urine usually show that you are not yet well, and are still in a condition of danger to yourself and to any pure woman whom you may marry. Whether or not a floater is important may be determined only by the doctor after microscopical examination.

Do not marry until after repeated examination by a competent specialist you have been pronounced free of the disease.

45 West 9th Street.

CYSTOCLE--RECTOCELE--PROCIDENTIA.*

By **WALTER B. CHASE, M.D.,**

BROOKLYN-NEW YORK,

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IT is not the purpose of the writer to discuss the etiology or pathology of these conditions, but to remark in passing that they are the outcome of laceration and relaxation of the muscular and fibrous structures which maintain the uterus in its normal position.

They are found in women who have borne children, whose tissues are relaxed, and who have suffered more or less laceration of the parturient canal. Most of the cases presenting themselves are parous women who have passed or are approaching the menopause. The relative degree of displacement of the bladder, uterus and rectal wall varies. In one the cystocele is most pronounced, in others the rectocele, and in the third class the uterine procidencia.

I desire to speak only of the treatment of these cases in which the three conditions are present. A typical case is one in which the cystocele has protruded itself just outside the vulva, the rectocele is similarly prominent externally, and the cervix rests between the two. Either of the three organs may be displaced more than the other two, but all require replacement and retention to overcome the discomfort, as a correction of one condition will not cure the other. To appreciate the case properly the patient must be examined on her back and standing. Notice the position of the organs and the resistance to be overcome to restore the structures to a normal position. Unless the uterus is of unusual size, or there is some neoplasm above whose pressure is responsible for the displacement, operation is admissible. After the menopause the uterus is usually atrophied and its weight, *per se,* is a factor of small consequence. Some have advised its removal, but for obvious reasons this should not be done.

If cystitis is present that should be overcome by appropriate treatment. If bacteria is present in the urine the use of urotropin or cystogen is indicated and bladder irrigation may be indicated. A frequent factor in these cases of cystitis is the presence of residual urine. Should chronic endometritis, senile or otherwise, be present, curettage is indicated.

The bowels should be kept open and the patient in a reclining position a few days prior to the operation, that the relaxed and distorted structures may have time to regain as normal a position and relation as the circumstances permit, as has been said before. The clinical picture of a typical case presenting itself for treatment is a woman passed the menopause, with a cyctocele the size of an egg or an orange, a rectocele of the same dimension, both protruding through the vaginal outlet, and the cervix uteri resting between them. The operation which I do in these cases is as follows: Denude a circular or oval area over the cyctocele of one and one-half to two and one-half or three inches in diameter according to its size, apply a purse-string number 2 suture of chromocized catgut which closes the denuded surface and leaves on healing a corrugated scar. Apply the same treatment to the rectocele. Then open the abdomen and do a ventral fixation of the uterus at such a point as will give support to the bladder in its normal position. The fixation of the uterus should be from a denuded uterine and peritoneal surface sufficiently large to ensure a broad area of adhesion.

If the woman has not passed the menopause and is liable to impregnation, it is a matter of judgment by the operator, in the individual case, whether he is not justified in removing the ovaries or resecting a portion of the fallopian tubes to prevent conception.

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*Read before the Brooklyn Gynecological Society, June, 1907.

Dr. Dickinson has recommended fastening of the bladder to the abdominal walls with the uterus as a mechanical support, but I have hesitated in this procedure in the fear it would cause vesical tenesmus, as is witnessed in cases following vaginal hysterectomy, in which the bladder was injured, and in which adhesions prevented its normal and easy evacuation, to the great distress and discomfort of the patient.

In these displacements the area of denudation for the cystocele can be varied according to the varying anatomical conditions present. In some cases colporraphy, anterior or posterior, may facilitate the needed support of the relaxed and displaced organs. The results of the operation herewith recommended has been fairly successful in my cases. Caution should be exercised in promising patients too much as regards permanent results of the operation.

These cases do not belong to the class of laparotomies which can be permitted to sit up in bed the day after the operation or walk about the room the following day, or, so far as that is concerned, for a period of at least two weeks. Special directions should be given, and their faithful observance enjoined, for the patient to have a daily thorough evacuation of the bowels, and that the bladder be evacuated sufficiently often that it does not become full, much less distended.

PLASTIC SURGERY OF THE VAGINA.

PART OF A DISCUSSION ON CYSTOCELE, RECTOCELE AND UTERINE PROLAPSE.*

By CHARLES JEWETT, M.D.,

BROOKLYN-NEW YORK,

FEW more difficult problems are presented to the gynecologist than those involved in the satisfactory correction of the displacements under discussion. Methods which, to my mind, are based on sound mechanical principles, and which in my work have given the best results, are the following:

Cystocele. With the patient in Edebohls position, the vaginal wall in front of the cervix is caught with tissue forceps, forming a longitudinal fold. This is cut transversely with scissors just above the level of reflexion. The transverse cut divides the entire thickness of the vaginal plate and extends usually not less than one-third way round the circumference of the cervix. A blunt-pointed scissors curved on the flat is pushed up between the vaginal plate and the bladder to a point within one-half or three-fourths inch of the meatus urethræ. By spreading the blades the vaginal wall is separated wholly from the bladder on each side. The bladder is then detached from the uterus to a line above the isthmus or higher after the fashion pursued in vaginal hysterectomy. The separation of the bladder is carried well out laterally. The lateral vaginal flaps are next cut away in such manner as to result in a triangular resection of the central portion of the anterior vaginal wall, the base of the triangle resting on the cervix, the apex lying not more than three-fourths inch behind the meatus urethræ. It will be observed that this is quite different from a mere denudation of the mucosa. The resection includes the entire thickness of the vaginal plate, mucosa, muscle and fascia. Its width depends upon the laxity of the vaginal wall, upon the extent of the injury to the fascia. Bleeding vessels are caught with artery forceps and twisted. Occasionally a fine plain catgut ligature is used. The sutures are then placed as follows: The cervix is pushed well backward and upward in the sacral hollow. Two No. 2 sutures of forty-day catgut are passed transversely parallel with the base of the denuded triangle and just in front of it. They engage the entire thickness of the vaginal flaps, mucosa and fascia, and they catch up the central portion of the cervix to prevent dead space. No sutures are tied till all are in place. These two sutures take up the slack in the utero-pelvic ligaments and help to hold the cervix in its normal position.

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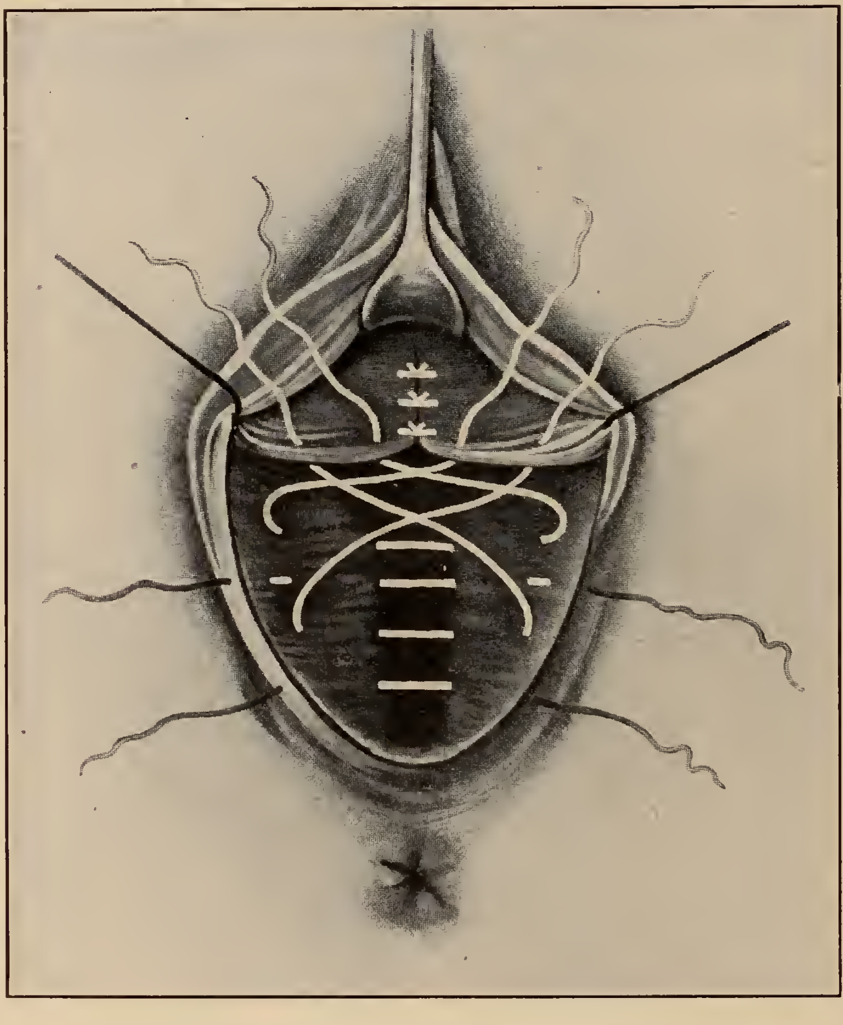
*Brooklyn Gynecological Society, June 7, 1907.

The bladder is now held well up with a stick-sponge by the assistant. The next suture is passed at the opposite end of the wound near the apex of the triangle. This is made to engage the tissues at each lateral aspect of the uterus just above the isthmus. The effect of this suture when tied is to hold the bladder well above its former attachment to the uterus and to partially antevert the uterus. The cervix, too, is lifted to some extent by torsion of the broad ligaments. The uterus is maintained in a position nearly at a right angle to the vaginal axis and a moderate degree of uterine descensus may be overcome by this method of anterior colporrhaphy. The remaining sutures are passed through the vaginal flaps and the median portion of the uterine wall. It is especially important in the introduction of the sutures to make sure that the fascial edges are securely caught in each suture and brought into neat apposition. Usually a few superficial sutures are required.



Modified Holden Operation For Rectocele.

Pushing the cervix backward and upward while placing the sutures is not essential, but it helps especially in locating the anterior sutures to best advantage. The introduction of the remaining sutures may be facilitated by bringing the cervix forward.

In women past the menopause the

bladder may be wholly detached from the uterus and the vaginal wall secured still higher to the uterine wall, or in marked uterine prolapse the Watkins operation may be carried out. In the latter procedure the utero-vesical fold of peritoneum is opened, the fundus brought down and sutured to the vaginal wall.

This kind of work has yielded good results and convalescence has rarely been attended with more reaction than is observed in the simpler procedures commonly practiced.

As a preliminary to the operation the cervix is amputated if diseased or the uterus much enlarged.

RECTOCELE. For a year or more in colpoperineorrhaphies I have pursued a modified Holden technic in preference to that of Emmet in cases of extensive injury. A considerable number of these operations have been done in my work and several by Dr. Pool. The rectocele is completely overcome and in practically all cases the supporting function of the pelvic floor muscles is satisfactorily restored. The results, too, promise to be permanent. The shape and extent of the denuded field is very similar to that of Hegar. It is carried far enough to uncover the anterior borders of the levator ani muscles. So much of the median borders of the levators as may be required, essentially the pubo-rectales, is sutured together.

The technic is the following: The pubo-rectalis on each side is picked up with a double tenaculum and drawn out. As much of the muscle as possible is secured and the muscle is identified by passing a finger within the vagina and pressing it to one side while traction is made upon the double tenaculum. The muscle is felt as a band running to the posterior aspect of the pubic bone. The muscular sheath is not opened. Two or three sutures bring together the vaginal edges at the upper angle of the denuded area. A long No. 2 chromated catgut is passed through the vaginal wall a little to the right of the median line; it is then made to surround the left pubo-rectalis muscle from without inward, is carried around the left pubo-rectalis from within outward, and then up through the vaginal wall on the left of the median line at a point corresponding to the point of entrance. This suture forms a figure of eight, the lower loop of which surrounds the two muscles a little way below the upper limit of denudation. A similar figure-of-eight suture is introduced about three-fourths inch below the first. A silkworm gut or chromated catgut suture is next passed from the skin surface of the external wound, below the last figure-of-eight suture. This includes the skin and a portion of the deeper structures on either side and is passed behind each of the muscles. Another similar suture is introduced between the two figure-of-eight catguts. Care is taken to roll the rectocele well back before the sutures are laid. The four main sutures are tied after all are placed, and in the order of their introduction. One or two superficial sutures as a rule are required.

The result of the suturing is to bring together not only the posterior portions of the pubo-rectales, but also of the anterior borders of the levators for a short distance above or behind their median borders, since the sutures engage the sheath of the levator muscles and the fascial sheets above or below them.

UTERINE PROLAPSE. In moderate degrees of descensus uteri the correction of the cystocele and rectocele by the foregoing technic usually suffices to correct the uterine displacement. In marked descendus something more is needed. When hysterectomy is permissible, as in exceptional instances of complete procedentia in women past the menopause, the broad ligament stumps, the round and the retro-uterine ligaments are securely fastened to the upper portion of the vaginal walls. But the vagino-plastic work as above detailed is also carried out.

In a number of cases, in addition to the vaginal plastic work, Dr. Pool and myself have opened the abdomen and shortened the round and either the retro-uterine or the utero-sacral ligaments. For the anterior operation in this class of cases the Webster method of shortening the round ligaments has seemed best. It anteverts the uterus more than does the Gilliam operation or any of its modifications, and with careful suturing the results have in nearly all cases been permanent.

For shortening the posterior ligaments two methods have been practiced, that of Bishop and that of Bovée. In the former the peritoneal folds of Douglas, or the retro-uterine ligaments of Deaver, are looped as follows: The fold is caught up on either side about two-thirds the way from uterus to sacrum. A small bit of the peritoneum is snipped off at this point and the raw surface sutured to the peritoneum and fibrous structures covering the upper part of the sacrum on the corresponding side. Union of cellular tissue to peritoneum, as Bishop says, results in the strongest kind of adhesion. Care must be taken to avoid the ureter and the internal iliac vessels. Some of these operations have failed. More secure is the shortening of the muscular bands, the utero-sacral ligaments. Each is laid bare by an incision through the peritoneum just to the inner side of the ligament. It is then caught up at its middle, forming a loop which is closed by two or three sutures; the bight of the loop is sutured to the posterior surface of the cervix near the insertion of the ligament. The peritoneal openings are closed. In these operations the work is facilitated if done when the fundus can be drawn well up over the pubes; the field may be lifted within easier access, too, by pushing up the posterior vaginal fornix with a suitable instrument. For this purpose we have used a special staff or a curved cervical traction forceps holding a gauze sponge, or the cervix may be held up with a tenaculum passed through the abdominal wound.

Shortening the posterior ligaments is technically somewhat difficult work, but its advantage when satisfactorily accomplished is obvious. The uterus cannot sag so long as its axis is kept in a position at a right angle to that of the vagina.

As already stated, Watkins, in total prolapse of the uterus, after separating the bladder from the uterus and the vagina, draws the fundus well down between the vagina and the bladder and sutures it to the vaginal wall. The torsion of the broad ligaments holds the cervix up.

Freund in similar cases goes still farther. He brings the body of the uterus into the vagina and sutures it there anteriorly and posteriorly. A permanent opening into the uterine cavity is then made through the fundus for drainage.

Döderlein and Krönig effect the same result by anteverting the uterus into the vagina and suturing it to the anterior vaginal wall only. Drainage takes place through the cervix and perforation of the fundus is not required.

With the operations of Watkins and Freund I have had no experience.

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Further information on advertising page 34

OCTOBER, 1907.

THE NEW LAW REGULATING THE PRACTICE OF MEDICINE.

LAW, theology and medicine may be called the bulwarks of the State. Without a code of laws civil government could not exist; without religion there would be nothing to hold the body politic together, for an oath would be without sanctity; without medicine the State would be helpless against disease, and great epidemics would devastate the population and destroy national prosperity.

The science of law possesses one important advantage over the other learned professions, for since the State makes its own laws, there can never be more than one theory of law in any community. Judges and courts may differ in the application, but for all citizens there is one code, one common law. Far different is it with theology and medicine. In this age of the world every man is his own theologian, for the State, wisely enough, at last came to the conclusion that it is impossible to regulate theology or control the opinions of men, even though it invoke the aid of torture and the stake to compel uniformity. The average citizen is of the opinion that if he is competent to choose his own church, he is equally competent to choose his own school of medicine, and since the science of medicine, so far as therapeusis is concerned, is still largely a matter of individual opinion, there will for some time at least be different schools of medicine as there are different schools of theology. The State has abandoned the attempt to regulate theology, but in recent years has undertaken to regulate the science of medicine without, at the same time, interfering with individual liberty of choice.

Whether the attempt to do for medicine what experience has shown to be impossible in theology, time alone will show. Those States which have adopted the doubtful policy of making a new examining board for every new sect in medicine are at least in the way of finding out the ultimate results of such a policy.

Ought the State then to regulate the practice of medicine? Is it possible to fence in the pathway to health, but impossible to fence in a pathway to Heaven?

Opinions as to remedies, whether for sin or for pestilence, will always differ, at least so long as the ultimate results in each instance are undemonstrable. My faith may sustain me in the hour of death, but it is not demonstration to my neighbor. So it is with remedial medicine. Men seek a cure for that which is intrinsically incurable, and were it possible to find a remedy for every form of disease, men would still seek a remedy against old age. Medicine must always, therefore, so far as therapy is concerned, be a matter of individual opinion, and that means the existence of sectarianism in medicine, just as there is sectarianism in theology.

How shall we then regulate the practice of medicine so as to minimize the evils of sectarianism? Not to regulate is an impracticable policy. The State cannot permit a horde of quacks to prey on its citizens, because there are such things as epidemics, the results of which are visible and tangible. It cannot permit ignorant men to dabble with powerful drugs, because men die when they are poisoned or maltreated, and thus all men can recognize the results of ignorance. We cannot prove fraud in theology, but we can prove the evils resulting from the ignorant practice of medicine. Thus the State assumes the right to regulate the practice of medicine, so that its practitioners shall at least do no harm because of proven ignorance, even though they may fail to cure through lack of knowledge. There is a wide distinction between the two facts. The State then has the right to supervise medical education. How shall it best exercise this right? Up to the year 1907 the State of New York maintained three different boards of examiners, corresponding to the three schools of medicine extant at the time the State undertook this form of legislation. There were manifest disadvantages in the system, but to get any regulation whatever it was necessary to recognize the three differing schools and have three different examining boards.

Within the past five years the faults of this multiple board system have become more glaring. The examination in all branches of medicene, except therapeutics and materia medica, was the same. Three boards were therefore cumbersome, expensive and unnecessary. The most serious evil, however, connected with sectarian medicine was the fact that the creation of a State board of examiners and the issuing of a State license, was, in fact, an imprimatur and certificate of competency by the State, and sundry quacks who had gained a foothold with the people were not slow to appreciate the advantages which would result to them if they could persuade legislatures to license them to practice their particular form of folly. But they wanted their own examining board, selected by their own State society, and they wanted a short course of study, much shorter than the other schools, on the plea that they gave no drugs. In fact, their original application to the legislature, five years ago, was nothing but a raid, and would have formed a most dangerous precedent. Year after year they appealed to the legislature for recognition. There were about three hundred of them who wanted to get within the pale without any examination at all. Moreover, encouraged by the example of these men and the increasing number of votes they were able to secure, other ridiculous "systems" made sundry and similar attempts to secure State recognition, not because they wanted regulation, but because they wanted the State to permit the establishment of short cuts to the practice of medicine; also *because they knew the commercial value of State recognition.*

Year after year these attempts became more numerous and bolder.

There was a certain logic in the situation, too; if the homeopath and eclectic were to have State boards and State recognition, why not the osteopath, the kneiseopath, the mental science therapeutist?

It must, however, be evident to any thinking man that to continue such a course with regard to medical practice would be a disastrous policy for the ultimate success of State supervision. Every doctor is acquainted with the queer history of popular medical delusions. The value of State supervision would be soon nullified if State examining boards were to be indefinitely multiplied.

How, then, is the State to meet the dilemma? To multiply State boards is manifestly bad policy; not to regulate at all is an equally unfortunate procedure. The key to the situation appears to those of us directly concerned in the matter to be the fact that the differences of opinion which create sectarianism exist only with regard to therapy. There is no such thing as sectarian anatomy; there is not a homeopathic fracture, or an eclectic form of typhoid fever. There are certain branches of medicine which are exact and demonstrable; moreover, these are fundamental, and a knowledge of these branches, proved by examination, would at least show whether the candidate possessed a sound education in fundamentals. If, however, we were to steer clear of the rock or multiple examining boards, it was evident that the only branch of medicine on which difference of opinion was possible must be left out of the question.

In other words, the State must satisfy itself of the thorough education of all applicants, but leave the subject of therapy to the different medical schools to deal with according to their individual opinion.

Then a State licensee under such a system is at liberty to use any remedy or form of treatment he pleases. This is, in effect, what the old law permitted; there never was anything to prevent a homeopath from using the remedies of other schools.

The present law, then, was framed on this plan and possesses many advantages over recent similar legislation in other States.

It gives us, in the first place, what we have never before had in this State—a clear definition of what constitutes the practice of medicine:

"*7. The practice of medicine is defined as follows: A person practices medicine within the meaning of this act, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity, or physical condition.*

"*8. Physician means a practitioner of medicine.*"

This definition will put an end to a lot of charlatanism and quackery with which the courts have hitherto been unable to deal.

Under this section a man cannot sell magic boots for the cure of locomotor ataxia and escape just punishment.

The requirements for admission to examination are similar to those of the former law, and the four years of study must have been in "a medical school registered as maintaining at the time a standard satisfactory to the regents. New York medical schools shall not be discriminated against by the registration of any medical school out of the State where minimum graduation is less than that fixed by statute for New York medical schools."

"*Sec. 8. Questions. — The board shall submit to the regents, as required, lists of suitable questions for thorough examination in anatomy, physiology, hygiene, sanitation, chemistry, surgery, obstetrics, gynecology, pathology, including bacteriology, and diagnosis. From these lists the regents shall prepare question-papers for all these subjects, which at any examination shall be the same for* all candidates, *except that the examination may be divided as provided in section seven.*"

It will be seen that materia medica and therapeutics have been left out of the above list of subjects on which candidates for a degree are to be examined. The conclusion of the State is that, if a candidate can pass examinations on the above subjects, he can safely be allowed to choose his own therapeutic measures, if not to cure, at least not to injure his fellow citizens.

In this act there is no recognition of any school of medicine which confers the degree of M. D. Homeopathic, eclectic, allopath, all stand on exactly the same ground.

The osteopath alone is mentioned by name, as follows:

"*6. Where the application be for a license to practice osteopathy, the applicant shall produce evidence that he has studied osteopathy not less than three years, including three satisfactory courses of not less than nine months each in three different calendar years in a college of osteopathy maintaining at the time a standard satisfactory to the regents. After nineteen hundred and ten the applicant for a license to practice under this act shall produce evidence that he has studied not less than four years, including four satisfactory courses of not less than seven months each in four different calendar years in a college maintaining at the time a standard satisfactory to the regents.*"

It will be seen that an applicant to practise osteopathy under this section must show that he has studied, previous to 1910, three years of nine months each in a schol of osteopathy *maintaining a standard satisfactory to the regents.*

After 1910 the applicant must show that he has studied not less than *four years,* including four courses of not less than seven months each in four different calendar years, in a college maintaining at the time a standard satisfactory to the regents.

After 1910, therefore, the osteopath must work as long and as hard to get his license as candidates from the other schools, and to what end? To be allowed the degree of D. O., *not* M. D., and to be excluded from the administration of drugs or the performing of surgery with the use of instruments. Under this law the D. O., after four years of study, because he does not study the properties of drugs, cannot give a hypodermic injection, instil cocaine into the eye for the removal of a foreign body, nor administer any anesthetic for any purpose whatever. This clause nullifies what has been the real purpose of the osteopath, and similar sects, the attempt to get State recognition by a short cut to medicine.

Up to the time of the passage of this law, any man with impudence, a good commercial instinct, no preliminary education, and no training whatever in medicine, could put up his sign of D. O., and extract five dollars per treatment from his dupes without molestation.

This law closes the door against such frauds and quacks, and so long as it remains on the statute books, closes it permanently to all similar quackery which may arise in the future.

"It is further provided that any person who shall be actively engaged in the practice of osteopathy in the State of New York on the date of the passage of this act, and who shall present to the board of regents satisfactory evidence that he is a graduate in good standing of a regularly conducted school or college of osteopathy within the United States which at the time of his or her graduation required a course of study of two years or longer, including the subjects of anatomy, physiology, pathology, hygiene, chemistry, obstetrics, diagnosis and the theory and practice of osteopathy, with actual attendance of not less than twenty months, which facts shall be shown by his or her diploma and affidavit, shall upon application and payment of ten dollars be granted, without examination, a license to practice osteopathy, provided application for such license be made within six months after the passage of this act."

The above section is the exemption clause to which so much exception has been taken, and with justice; it is bad legislation in that it will legalize a lot of frauds, but, even in this shape, it is far better than its alternative would have been. What was the situation this year at Albany with regard to legislation about osteopathy? Three years ago the bill drawn by the osteopaths passed the senate by a majority of one vote; it did not come up in the assembly. The following year the osteopaths succeeded in getting more votes, and it passed the senate by a much larger majority; it still failed to be brought up in the assembly. Last year the bill passed by a very large majority in the senate and undoubtedly would have been passed in the assembly had the committee on rules reported it.

There was no doubt whatever that the osteopathic bill of this year would have passed both houses by a large majority, in which case, of course, it would have been impossible to have passed any other bill regulating medical practice. Moreover, the bill prepared by counsel for the osteopaths had a similar and much broader exemption clause and gave to the regents no jurisdiction whatever over the medical standards of the so-called osteopath schools of medicine, most of which have been consolidated under the name of the Atlantic School of Osteopathy.

It seemed to every one who was conversant with the situation at Albany that it was better to accept the unity bill with this exemption clause than to accept the alternative which was the passage of the osteopathic bill and the creation of a fourth medical examining board.

The mere creation of a fourth examining board would have been a precedent for the creation of yet other boards in the future, which would result in a chaotic condition of affairs, so that the State's attempt to control the practice of medicine would have ended ultimately in what would have been no control at all. It is the opinion of those who are qualified to judge, from a knowledge of the facts, that the new law is a very valuable piece of legislation, not perfect, perhaps—what legislation is, which of the ten commandments?

ALGERNON T. BRISTOW.

THE POSITION OF THE OSTEOPATH.

THE communication from Dr. Bristow, explaining the new law regulating the practice of medicine, shows us how a sect, whose entire fabric is based upon erroneous premises, may gain prominence and be recognized by the Legislature of the State as a body of earnest, conscientious practitioners, who are to be entrusted with the care and treatment of disease. The fact that the practice of medicine is not an exact science, has aided them in their contentions; no cult, however, based upon such false theories as those of osteopathy should be classified under the laws of the State with the other schools of medicine. The dividing fence between the regular school, the eclectic school and the school of homeopathy have in recent years been generally demolished, and the so-called practitioners of homeopathy and eclecticism have, almost without exception, adopted the therapeutic agencies of the older school of medicine in addition to their own.

Although the present bill recognizes a school of osteopathy—and such recognition we hold to be unfortunate—still it is the lesser of two evils. It makes it necessary for the individual to devote just as much time and study to obtain a license to practice osteopathy as it would to obtain a license to practice medicine. An osteopath then receives the degree of D. O., after having studied three or four years in a recognized school of osteopathy, and at the end of that time cannot prescribe for a patient, nor can he use drugs in any form; he can simply practice osteopathy. In other words, it destroys one of the principal advantages of osteopathy, namely: the ability to practice medicine or a branch of medicine without devoting a sufficient number of years to mastering the essentials of the science.

It is believed that this bill will do away with all of the objectionable features of osteopathy, and it certainly will help greatly to control the practices of other forms of quackery in the State of New York.

NEWS ITEMS.

October Meeting, Associated Physicians of Long Island—Owing to the new law relative to free transportation on the railroads, the Long Island Railroad has been forced to make a new arrangement in regard to the transportation of the members of the Associated Physicians of Long Island; just what they will be able to do for us is not yet known. It is on account of this uncertainty that the place of meeting for the October Convention has been changed from Shoreham to Mineola, and the date has been changed from October 12th to October 19th. Mineola is by far a more central point than Shoreham, and it is expected that the meeting will have a very full attendance.

Brooklyn Society for Neurology—Thursday, September 26th, the Brooklyn Society for Neurology held its regular meeting. Some pathological specimens were presented by Dr. Tilney, and a paper on "Traumatic Psychosis" was read by Dr. A. C. Brush.

Death of Dr. A. W. Shepard—Dr. Shepard, who was one of the most widely known physicians in this borough, died Monday morning, September 9, 1907, at his summer home on the Shore Road, Fort Hamilton. He had been practicing in Brooklyn for nearly fifty years, and for over twenty-five years had been county physician; his office, at Willoughby and Gold Streets, resembled more a dispensary than the office of an ordinary physician, on account of the hundreds who sought the doctor's aid at that place. Dr. Shepard was born in Nashua, New Hampshire, and graduated from the Long Island College Hospital in 1866. Although a member of the County Society, he was seldom seen at the Library Building. The exact cause of his death is not known, but is supposed to have been due to an accidental overdose of morphine.

Death of Dr. Joel Wilbur Hyde—On Wednesday, September 22, 1907, occurred the death of Dr. Joel Hyde, at his residence, 215 Schermerhorn Street, Brooklyn. Dr. Hyde was sixty-eight years of age, and during almost his entire professional life he had practiced in the Borough of Brooklyn, being for many years identified with the work of the Long Island College Hospital, but recently retiring from active duty there. His funeral took place from his late residence on Tuesday, September 24th.

Death of Francis H. Markoe—Dr. Markoe had been critically ill since early in the summer from an affection of the heart, from which he died in September. Dr. Markoe was the son of Dr. Thomas M. Markoe, who died in 1901. He was graduated from the College of Physicians and Surgeons in 1879, and was probably best known as one of the surgical staff of St. Luke's Hospital, from which position he resigned last summer on account of ill health; he was also prominent in many of the social clubs of New York City.

Dr. Truman W. Brophy, of Chicago, Illinois, Professor of Oral Surgery in the Brooklyn Post-Graduate Medical School, operated upon several cases of cleft palate during the week ending September 21st. One case was of special interest in that the patient was twenty-three years of age, and operation had been refused her by many eminent surgeons; Dr. Brophy was able to operate successfully on the case and made a perfect approximation of the muco-periosteal flaps. Professor Brophy will visit the city later in the fall, notice of which will be found on the bulletin of the Brooklyn Post-Graduate Medical School, Bedford Avenue and South Third Street.

Swedish Hospital Fair — During the week ending September 28th, the Swedish churches and societies of Brooklyn have co-operated in holding one of the largest as well as the most elaborate Fairs ever held in Brooklyn. The Fourteenth Regiment Armory was used for the purpose, and the Fair was very well attended. The Swedish Hospital is one of the newer institutions of the city, but it has made good progress and is noted for the amount of charitable work which has been done in its wards. Those who have not inspected the hospital will be shown through by the Superintendent, Miss Pedersen, who is in charge of the Executive as well as the Nursing Department of the Hospital. Although the amount of space given to the patients is limited, still the general wards, private wards and private rooms are immaculate and the service is excellent.

Homeopathic Convention in Brooklyn—September 24, 25 and 26 mark the period of the Semi-Centennial Celebration of the Kings County Society of Homeopathy. The society was formed in November, 1857, and has numbered among its members many prominent homeopaths in this city.

Canadian Journal of Medicine and Surgery—In September, the annual illustrated number of this journal appeared, published in connection with the meeting of the Canadian Medical Association at Montreal. The number contains some excellent surgical contributions and forty pages of half-tone illustrations of some of the hospitals, sanitoria, and public institutions in Canada. *The Canadian Journal of Medicine and Surgery* is one of the most progressive journals of its kind in Canada, and the September number is a credit to its editors.

The New Law Governing Certified Milk in the State of New York—"No person shall sell or exchange, or offer or expose for sale or exchange, as and for certified milk, any milk which does not conform to the regulations prescribed by and bear the certification of a milk commission appointed by a county medical society organized under and chartered by the Medical Society of the State of New York, and which has not been pronounced by such authority to be free from antiseptics, added preservatives and pathogenic bacteria, or bacteria in excessive numbers. All milk sold as certified milk shall be conspicuously marked with the name of the commission certifying it."

Public Lectures on Medical Topics of General Interest—During the coming year a series of lectures will be given on medical topics for the instruction of the general public. The lectures will be given at the Library Building of the Medical Society of the County of Kings. The next lecture will be on October 13, at 4.30 P. M., by Florence Leigh-Jones, M.D., the topic being "The Care of the Sick Room." It will be of interest to see how these lectures are attended, and one will be better able to judge at the end of the present season as to their usefulness.

Medical Society of the County of Kings — The following candidates have been accepted by the Council: Elliott I. Dorn, Samuel A. Glück, Percy Houghton, W. R. Shatterley, Paul Tradelius.

Changes of Address—Irving C. Allen, 1081 Park Place; Albert W. Beck, 108 Garfield Place; Paul L. Parrish, 1030 Bergen Street; Alfred Potter, 489 Fourteenth Street; Russell M. Rome, 246 Clermont Avenue.

Deaths from the Plague—The number of victims in India for the first six months of the present year was 1,060,067; for the entire twelve months of 1904, 1,022,000 deaths were reported.

Fatal Plague in San Francisco—During the last two weeks in August there were nine cases and six deaths from plague in San Francisco. Two of the victims were sailors from coasting vessels, the other cases occurring in the county and city hospitals.

Russell Sage Institute of Pathology—Mrs. Russell Sage has given $300,000 to the City Hospital and City Home on Blackwell's Island, as an endowment for an Institute of Pathology. The purpose of the gift is to foster research work in the diseases affecting the aged.

Dr. George Colby, formerly of Brooklyn, announces that after October 1 his address will be at 108 East 35th Street, New York City. Dr. Colby is devoting himself to diseases of the throat and nose.

Dr. Robert L. Wood, of 129 Hancock Street, Brooklyn, announces that he will give special attention to urine and sputum analysis, and to anesthesia. Telephone 340 Bedford.

The Sixth International Dermatological Congress—From September 9 to 14, 1907, the International Dermatological Congress was in session at the New York Academy of Medicine. The Borough of Brooklyn was represented by Drs. James M. Winfield, Samuel Sherwell, John J. Lyons, Alfred Potter and Dr. Emile C. Bernauer. During the congress Dr. Winfield gave a luncheon to Dr. H. Radcliffe Crocker, the eminent English dermatologist. The luncheon was given at the Crescent Club town house, and there were present Drs. Lewis Pilcher, Charles Jewett, William Browning, Glentworth Butler, Samuel Sherwell, J. M. Van Cott, E. H. Bartley, J. B. Thomas, John E. Sheppard, and Robert M. Elliott, the Superintendent of the State Hospital at Willard, N. Y. The Brooklyn men were active in the meeting; Dr. Samuel Sherwell was one of the American Vice-Presidents, and was also a member of the Committee for Clinical Exhibits. Dr. Winfield was a member of the Organization Committee and of the Entertainment Committee; he also presented a number of rare and interesting cases of skin diseases at the clinical session, and both Dr. Winfield and Dr. Sherwell discussed a number of papers. The interest taken in this congress by the Brooklyn men was far greater than has been seen in many of the recent national and international congresses.

TRANSACTIONS

OF THE

BROOKLYN PATHOLOGICAL SOCIETY

EDITED BY CLAUDE G. CRANE, M.D.

477th Regular Meeting, May, 1907.

The Vice-President, RAYMOND CLARK, M.D., in the Chair.

MALIGNANT ENDOCARDITIS.

DR. J. J. COLLINS said that his first case was a woman admitted to St. Mary's Hospital seven years ago, giving a history of having had a miscarriage three months previously. She was running a typhoid or septic course of the disease. He examined the blood, and could get no Widal reaction, nor was he able to find any plasmodium malariæ.

On the physical examination no abnormal heart sounds were heard, and he was much in doubt about the case for a week, when purpura hemorrhagica developed and following that in two weeks she died. At autopsy a malignant endocarditis was found. The heart was fastened to the pericardial sac by adhesions, and there was a large growth on one of the valves, which had been partly broken off.

The second case he saw four years ago. He was called to see a boy fourteen years old, who had a rheumatic condition, and was running a temperature between 100° and 102°, with a rapid pulse, and who had a double murmur at both the apex and the base of the heart. The case ran along for about a week, when the muscles governing speech and deglutition became paralyzed. This cleared up in less than twenty-four hours, and at that time the speaker thought the boy had a malignant endocarditis and told his father so. Following that, as in the first case, there occurred a loss of the radial pulse. The boy's temperature varied from 101° to 102°, with a rapid pulse, until the middle of February, when he developed a purpura hemorrhagica and bleeding from the nasal mucous membrane, also a hemorrhagic gingivitis. He died in the early part of March. On autopsy he found the growth in this case was of a different character to that in the first case.

The specimens were presented.

DEAD FŒTUS RETAINED IN UTERO.

Dr. J. J. Collins said that this patient last February had a facial erysipelas, and after having rather a severe time recovering from that condition, she developed an acute mania, which persisted until the summer months, not very bad, but enough to cause her to be kept under close watch. In the fall of the year she came to him and told him she thought that she was pregnant. She had missed one period, and was much worried about it. He told her to go home and not pay any attention to it. He saw no more of her until the middle of March, when she came to him and wanted to engage him for a confinement, which she said was to occur on April 7th, and she added that she was not at that time prepared for examination. He saw no more or her until after April 7th, and going by her house one day he called, and asked her if she had had her baby. She replied no, and he told her he did not think she was pregnant. Two days later he was called to see her, and she passed an apparently six weeks' flabby fœtus, which she had probably been carrying a long time. The fœtus was degenerated, and there was a fetid odor.

PATHOLOGICAL VARIETIES OF APPENDICITIS.

Dr. T. H. Dexter, presenting specimens of some of the more common varieties and a few of the uncommon conditions of appendicitis, said that perhaps the first type worthy of mention was a simple inflammatory condition or catarrhal inflammation of the mucous membrane of the appendix, or congestion of the mucous membrane, which frequently goes no further than that. This seemed to be the type of appendicitis that subsided and recurred again and again, until finally the changes known as obliterative appendicitis took place. In connection with this latter variety, in a large proportion of the cases, the last centimeter of the appendix is involved. When we get a history of previous attacks and operation during the present acute attack, it will be found that, in addition to the general inflammation, there is a thickening of the distal centimeter. Sometimes it is only noticeable to the knife when you cut through; sometimes it is excessive enough to obliterate the lumen of the appendix in that part entirely. Another thing of interest where the obliteration of the appendix is general, is that in a large number of them there is a fatty infiltration of the meso-appendix. Where one sees a meso-appendix so markedly fatty, you often see it before you see the appendix itself.

In cases of general inflammation we have a reddened, thickened, serous coat, with vessels distended and engorged, and marked infiltration of the mucous membrane, with perhaps some necrosis and mixture ulceration, and some extravasation in the median coat as well. Of course, this may go on to any of the other types or resolve.

Of interest in connection with the gross examination of these specimens are the local lesions, which occur there as part of the general inflammation. A common one is localized ulceration. These ulcers may be in the mucous membrane, and may go from any depth from superficial ulceration to complete necrosis of the wall and perforation. Sometimes we see a hernial protrusion of the wall; a pushing out which resembles an ordinary hernia from thinning of the appendical wall. Perforations and pus in the lumen are so usual that it is barely necessary to mention them.

Another interesting form that rarely occurs is what might be termed miliary abscesses in the wall of the appendix. There are some inflammatory changes in the appendix, but the most distinct change in it is in the median coat where it is studded with minute pus foci. Gangrene is an end result of almost any of these forms.

Foreign bodies. While foreign bodies are rare, occasionally we do see some interesting demonstrations of foreign bodies aside from fecal concretions. In something over 1,000 appendices, he had seen four cases of foreign body other than fecal concretion. In only one of these was there a grape seed, and in that appendix five grape seeds were found. In another appendix there was a thread worm; another two or four fine bristles, apparently from a tooth brush, were found in the lumen of the appendix.

The changes in the meso-appendix are interesting and quite varied. The way in which a meso-appendix will grow up in a conservative process and help surround a perforation and wall it off is interesting. Occasionally you see a perforation of the wall of the appendix that is complete, but which ends blindly in the meso-appendix.

Attached omentum is so common an accompaniment of appendicitis, that it needs no more than a mere mention.

Among the specimens presented was one of intussusception of the caput coli involving the appendix, and one of intussusception of the distal 1 cm. of the appendix.

THE VALUE OF THE OPSONIC INDEX AS A GUIDE IN THE TREATMENT OF BACTERIAL INFECTIONS.

A paper with the above title was read by C. F. Bolduan, of New York (for which see page 401).

Discussion.

Dr. A. Murray said that we see a good many articles in the journals regarding the opsonic index, and the question arose as to its value, and whether it had come to stay. From the fact of its apparently being of importance in superficial infection, he failed to see why it was not of value in systemic infections. Take a local staphylococcus infection, if the same patient had a septicæmia why would not this method be of value there? He stated that there was a case in Long Island College Hospital the past month which was rather interesting. The patient had an abscess in the neck; it was opened and a culture showed the streptococcus. The patient did badly, and as a last resort the method of bacterial vaccination was suggested, as well as the determination of the opsonic index, and Dr. Potter was asked to come from New York. He made some blood cultures for this organism, which were negative; although she had joint symptoms there was no pus there, and the organisms were probably not in the blood. He procured an organism from the pus, but it was of too slow growth to use. He used a streptococcus from a similar case, which corresponded as closely as possible to her case, and gave her three injections covering a period of ten days. After the second injection her index went up, and the wound began to look better; the temperature dropped, and from that time she went on to complete recovery; to his mind that was certainly a cure. If that had not been used he thought she certainly would have died. There were probably no organisms in the blood; it was not a septicæmia. She had a localized infection in the neck, and he supposed a toxæmia, but the trouble was localized.

The speaker said he had seen the tube with the double hook, but the one presented by Dr. Bolduan was certainly an improvement. He supposed this was used by dropping it into the centrifuge tube.

The doctor also emphasized the variations in normal indices, which were greater than the speaker had supposed; apparently the interpretation of these indices is going to be as bad or worse, he stated, than the interpretation of certain blood counts.

In conclusion, Dr. Murray inquired as to whether Dr. Bolduan could enlighten the audience as to the source of the opsonins.

DR. C. F. BOLDUAN, in reply to a question, said that with some patients we get merely a little local reaction after making injections, though as a rule we see nothing. So far as the next question was concerned, it must be remembered that *dead* cultures were injected, so that one could not well speak of lethal doses. However, the amount of bacterial cell substance injected was really very small; thus a single agar slant of staphylococus represented perhaps fifty doses of the ordinary size. In some of his work, the speaker had used inoculations of mixtures of several different strains.

In regard to the source of the opsonins, the speaker himself had no knowledge; Metchnikoff was very sure that the leucocytes are the source. He shows that the leucocytes act as phagocytes even without opsonin, only it takes them longer to do it; Metchnikoff says they then expel these substances.

As to why this treatment was not of value in systemic infections, the speaker stated that Wright believes that it is occasionally. In fact, at the Academy, last November, Wright gave a report of a case of malignant endocarditis, in which the organism had been recovered from the blood. The case was not very convincing; the improvement did not seem clearly due to the opsonic treatment. According to his own premises, a systemic infection should already have flooded the body with so much of antigens, that it would hardly be proper to inject more. The speaker thought in a desperate case we ought to try this treatment, because he believed that we may, after a while, find out just what kind of cases we can benefit with the active immunity treatment.

As far as the streptococcus cases are concerned, he had had but few, and the results were not brilliant. The opsonic indices, however, were increased in all.

The speaker mentioned a case of staphylococcus boils in which opsonic measurements were taken daily; after a month's treatment the patient suddenly began to improve, and was now well. The opsonic indices did not parallel the clinical course.

In regard to the dosage employed in staphylococcus, Wright gives from 300,000,000 to 500,000,000. Vaccines are quite readily standardized by taking a small capillary tube, placing a mark on it, then from a prick of the finger taking a measure of blood, then an air bubble, and lastly a measure of the emulsion to be tested; in other words, mixing equal parts, expelling on the slide the blood back and forth and making a wide spread. Then make a smear, examine under low power, and one obtains the ratio between the bacteria and the red blood cells. Taking the normal red count as 5,000,000 per c.mm., you can find how many bacteria there are in a cubic millimeter. Multiplying this by 1,000 gives the number per cc.

FALL MEETING

MINEOLA—OCTOBER 19, 1907.

TRANSACTIONS

OF THE

BROOKLYN GYNECOLOGICAL SOCIETY

A. A. Hussey, M.D., Editor.

Stated Meeting, June 7, 1907.

The President, R. H. Pomeroy, M. D., in the Chair.

LARGE OVARIAN CYST

Dr. George McNaughton reported the case of a woman over 60, who had an enormous tumor, which she told him had been tapped six or more times, and each time the "tumor disappeared." This statement, he thought, was not true, because it was a glandular cyst, and he found it attached to the parietal peritoneum all around. It had to be separated. He found it rather difficult to do so, and he opened cyst after cyst, until he thought the mass was small enough to deliver through the opening; he finally succeeded in doing so, and found no intestinal attachment of the tumor and no attachment except to the parietal peritoneum. Some of the fluid was lost, but the weight of what was saved and the tumor itself was 35½ pounds. It was such a tumor as a few years ago he thought he would have abandoned the attempt to remove, but it separated fairly easily. The patient at the present time was doing very well.

The point of special interest was the size of the tumor and the fact of its extensive attachment except to the viscera, the intestines occupying but a small space in the peritoneal cavity.

POMEROY'S CERVICAL DILATOR WITH IMPROVEMENTS

Dr. R. H. Pomeroy said that the point of improvement was in the construction of the smaller size, as it is now made with only one seam carried to the top, so that instead of four gores there is but one. By means of this improvement the bag will fold up into a slightly smaller space, being more readily introduced on that account.

The speaker said that he found in a good many cases, particularly in the indication for induction of labor, that the large size was too bulky for use unless the patient was under an anesthetic or the uterus was at full term.

He likewise stated that a system of reinforcement of the concave curve had been devised, which he thought would avoid the splitting of the bag at the concave curve, which had occurred in some cases.

Dr. Charles Jewett said that he had used the largest bag in a case at the seventh month and introduced it without any great difficulty at a time when the dilation was only moderate. The bag is proving very satisfactory, he said, and he was sure it was the common thing for hydrostatic dilation when Nature fails.

Dr. V. L. Zimmerman asked what amount of pressure should be applied. He used the bag some time ago in a case of eclampsia and lacerated the cervix very badly. He did not know he was doing the damage at the time until he took the bag out. He used a Davidson syringe and put on a great deal of pressure.

Dr. Pomeroy said the amount of power in the apparatus is quite sufficient to split the cervix open if applied indiscriminately. He had made a good many efforts to determine some automatic method of measuring the force applied, but he did not see how it could be done. The time and rapidity of the application of the force would depend on the rigidity of the cervix, and the cervix should be examined from time to time by allowing the lower compartment to collapse. A very satisfactory appreciation of the amount of pressure put on the cervix could be made by noting the rigidity of the lower compartment, that is, as it is distending—if it becomes tense it is a fair measure of the resistence at the cervical constriction. It is not to be considered that it can be pumped full in a few minutes without lacerating the cervix.

Another important practical point is not to have the upper compartment inflated absolutely tight. The upper compartment can always be palpated through the cervix and its tenseness definitely felt.

The apparatus, the speaker said, is not automatic in any sense. It cannot be inserted and pumped full and allowed to come through the cervix without any fear of lacerating the cervix. It will bear watching.

CYSTOCELE, RECTOCELE, PROCIDENTIA

A paper with the above title was read by Walter B. Chase, M. D.

Discussion.

Dr. John O. Polak said that the paper brought up a subject of the greatest interest to all. Many of us feel that we can take out a tube or an ovary and get our patients well; but the restoration of the pelvic structures is something that we cannot always feel sure of making in every case. In these cases of prolapse with rectocele and cystocele, he was surprised to hear the doctor speak of and adhere to the old denudation of Stoltz, with the purse-string suture, for extensive cases. It seemed to the speaker that these cases needed more operative work to give them any permanency as to results.

Many of these cases, Dr. Polak said, have associated a considerable enlargement of the cervix, and he felt that in most of them the uterus has to be shortened by an amputation of the cervix. If we do a high amputation of the cervix, a scar follows, as Byrnes' old operation of putting a cautery wire around the cervix and burning into it used to do, and hold the uterus high in the pelvis.

Another point that the doctor spoke of is the pre-operative treatment in patients suffering from prolapse. This is important. He thought that Emmett, when he used to keep these patients in bed for several days before operation, with the foot of the bed elevated, using hot douches, iodine and boroglyceride tampons, had better results than was the rule at present, when no pre-operation treatment was given.

In regard to anterior wall operations, the speaker had made use of many different devices. A procedure he had used in some cases had been a modification of Goffe's operation, making an incision from the meatus to the cervix and a transverse incision near the uterus, making a T, and peeling off the bladder completely from the anterior vaginal wall, opening the anterior cul-de-sac, and by turning the bladder above the uterus, in old women, the cystocele was cured. The uterus is sewn into the vaginal wound, as in fixation. All of these operations must be supplemented with a posterior perineoplasty.

The doctor referred to Dr. Dickinson's operation of suspension of the bladder. The speaker said he had used that in 12 or 15 cases, and he does not think it does all that Dr. Dickinson claims for it. He had not had any troublesome symptoms with it, save one. In these cases of prolapse the uterus becomes accustomed to the circulation of prolapse, and if we put the uterus on a higher plane the patient is often uncomfortable at her menstruation, because of the disturbed circulatory equilibrium.

In old women an operation devised by Dr. Harris, of Paterson, for extreme procidentias has given a very satisfactory result in two instances. A celiotomy is made and a supra-cervical amputation of the uterus done. After repairing the pelvic floor, the cervical stump is sewn into the lower angle of the abdominal wound, this puts the vaginal walls on the stretch and overcomes the descending. He remembered one particularly bad case where the woman had a prolapse with cystocele and rectocele coming some six inches outside the vulva. By putting her in bed, with elevated foot posture douches and tamponade for a week, and then repairing the anterior and posterior wall and amputating the uterus at the supra-cervical junction, she had a most comfortable result and she has been well for six years.

Dr. H. C. Keenan said that the great number of operations that have been devised evidently shows that no one of them is entirely satisfactory. He thought Drs. Jewett and Polak had mentioned most of the operations now in vogue. He came across, the other day, some operations that were entirely new to him; somewhat after the idea of the Watkins operation. The first operation is to split the vagina from the urethra down to the anterior fornix, then go through the anterior fornix and pull down the uterus and pull it out through the opening in the anterior fornix until it rests underneath the bladder, the mucous membrane of the vaginal wall is turned in and the uterus is placed in this opening, so that it rests immediately beneath the bladder, and then the vaginal wall is sewed over the uterus, not entirely covering it.

Another operation is to open into the posterior fornix and invert the uterus out through this opening and sew it to the anterior wall of the vagina. This, of course, leaves the fundus of the uterus projecting downward and a new cervix is then made through the fundus of the uterus.

An operation which Dr. Baldwin has used, and which he had done lately, as he undertood, gave very good results; that is to make three little denudations on the anterior wall near the cervix, and then by suturing the edges of these denudations together and suturing the whole raw space together afterward, a small ring is formed around the cervix, this tending to push the cervix upward; then two parallel denudations are made from this point down toward the urethra, and these are likewise drawn together, leaving at the end practically two openings—an upper and lower. This forms two pillars besides the ring around the cervix, and that tends to give a very good support to the base of the bladder.

Dr. W. P. Pool said with regard to the Dudley operation on the anterior wall, that had appealed to him as being a very valuable one, for the reason that it narrows the anterior vaginal wall without shortening it, and, too, in this operation it is possible to dissect the bladder back from its attachment and raise it much higher. The operation does not intend to carry the bladder above the uterus, but to attach it higher on the anterior wall.

In cutting through the fascial plate and taking out the elliptical piece, the two sides are brought together, and a suture passes doubled underneath the place where the bladder was originally attached. This answers nicely where there is a sufficient fascial attachment. Of course, where there is not a good support laterally the operation may fail. It must always be supplemented by some method of raising the uterus and anteverting it. The methods of doing this, the speaker stated, had been pretty well discussed.

Dr. Walter B. Chase said that the paper, as he stated, had special reference to the cases which occur at or near the menopause. He did not mean to discuss the field in all its aspects, because, as brought out by the discussion, it is a large one.

As to the question which was

raised by Dr. Polak about amputation of the cervix, if you have an elongated cervix he thought it proper it should be done, but in a majority of these cases the cervix in itself does not seem to be sufficiently large to be much of a factor in the case, as in most cases involution is already present.

Dr. Polak also referred to the question of the previous treatment. He alluded to that in his paper, and enforced the necessity of keeping the patient in bed prior to the operation and subsequent thereto until firm union of fixation was accomplished.

Concerning the discomforts which may occur after the operation, he had seen them infrequently; less often than cystitis, which occasionally is present after plastic operations on the cervix and vagina.

From a practical and scientific point of view, it seemed to him that the operations of Holden and Dudley are eminently fitted to these cases, occurring in younger women, but from his experience he was disposed to do the minor operation in this class of case until he found that the failures were such that it would not warrant him to pursue that course any longer.

The primary question was to give support to the bladder, and he saw no other way so rational and easy. In this operation there is no extensive dissection or mutilation of the parts, and after you have closed in the cystocele and rectocele and made a broad uterine fixation, it seemed to him you had met the indications. In these cases the principal discomfort arises from the bladder, and when the fundus of the bladder rests below the urethra, there is always residue urine, more or less cystitis, and resulting discomfort arises from that source; this makes elevation of the bladder imperative.

In making your fixation, place the uterus sufficiently high to lift the bladder into a normal position, if admissible, transverse to the axis of the vagina, and you have given the necessary support to keep the bladder in position. If that fails, resource can be had to the larger and more pretentious procedure.

UNUSUALLY LARGE GALL-STONES

Dr. John O. Polak presented five gall-stones which, he said, were unique in their arrangement and their extreme size. The patient, a woman 54 years of age, had always been in perfect health, with no digestive disturbances throughout her life, except that when she was four years old her mother had told her she had had a period of six months of difficult digestion, but from the beginning of adolescence until the present time she had no abdominal symptoms of any sort. Three weeks ago she was seized with an acute attack of pain, followed by vomiting. The pain was at first general, but later became localized in the right iliac fossa. Following the pain and vomiting, the temperature rose to 102 degrees and the pulse went up correspondingly. The doctor in attendance made a diagnosis of appendicitis, put on an ice bag and kept it there continuously. The temperature gradually dropped from 102 to 101 degrees in the evening and her pulse gradually became slower. The treatment consisted of fasting, rest and enemata.

The speaker saw her on the Monday following the attack. At that time there was a marked ecchymotic area under the ice bag in the right inguinal region, which had been produced by the continued use of cold. There was an intra-abdominal mass extending to McBurney's point and ending at the liver, and he made a diagnosis of an appendix pointing north with omental protection, or gall-bladder disease, and sent her into the hospital. That night her temperature was 101 degrees. The following morning it had come down and her pulse also came down. A leucocyte count had been made every four hours during her first twenty-four hours in the hospital, with the following interesting phenomena: The leucocytes continued between 17,000 and

19,000. The polynuclear count on admission was 84 per cent., and as the leucocyte count increased from 17,000, gradually going up, the polynuclear descended until it became 76 per cent. at the end of thirty-six hours. He felt then that he might wait before operating, because of deep slough of the skin caused by the ice. During the interval of quiet all the abdominal symptoms subsided, so that the gall-bladder could be mapped out distinctly, extending down almost to the site of McBurney's point, and there was no question as to the gall-bladder inflammation. The abdomen was opened and the gall-bladder found wrapped in the omentum. After the omental adhesions were separated, the gall-bladder was brought out into the wound, aspirated, and the stones which he exhibited were removed. The conical-shaped stone was at the cystic duct, and the others piled up one upon the other to the fundus of the gall-bladder. The patient is making a very good recovery.

Replying to a question, Dr. Polak said that the skin slough was covered over with a rubber dam for protection during the operation, and outside of the sloughing of the skin he had no trouble at all.

BOOK REVIEWS.

Surgical Diagnosis. By DANIEL N. EISENDRATH, M.D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois (College of Physicians and Surgeons). Octavo of 775 pages, with 482 original illustrations, 15 in colors. Philadelphia and London: W. B. Saunders Company, 1907.

Those who have previously reviewed this book of Dr. Eisendrath's, on Surgical Diagnosis, seem to think that there still remains a good deal to be desired. It seems to the present reviewer that they have not understood the author's standpoint—the question of diagnosis having been approached chiefly from the clinical point of view. The last chapter of the work is devoted to methods of examination; perhaps it would have been better had this chapter, together with the chapter on Evidences of Disease, been used as introductory to the other chapters of the book. The fact that the surgeon must throw aside the finer and more exact methods of diagnosis as soon as he gets outside of the hospital is the weak point in his armamentation. He has relegated the blood examinations, the cystoscopic examinations, the urine examinations, and so on, to his assistants, and that is why so many of these books are written from the clinical standpoint. It means also that surgical pathology does not enter at all into the establishment of the diagnosis. There are eight chapters in this book. Chapter I deals with the surgical affections of the head; nowhere can be found a better consideration of the subject than here. The illustrations are especially good and helpful. The grouping together of the various injuries and diseases of the scalp, skull and brain is good. The chapter on the surgical affections of the neck is not so interesting, but still is most valuable. One of the best chapters is that upon injuries to the bones and joints. The section on cystoscopy, written by Gustav Kolischer, does not seem to fit in well with the other parts of the book; the cystoscopes depicted by the writer are those in use twenty years ago; this section should be improved. The treatise is the best upon the subject of surgical diagnosis that has yet been produced.

Surgery: Its Principles and Practice. In five volumes. By 66 eminent surgeons. Edited by W. W. KEEN, M.D., LL.D., Hon. F.R. C.S., Eng. and Edin., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Phila. Vol. I: Octavo of 983 pages, with 261 text-illustrations and 17 colored plates. Philadelphia and London: W. B. Saunders Company, 1906. Per volume: Cloth, $7.00 net; Half Morocco, $8.00 net.

VOLUME I.—Seldom do we see in a single year the production of two great encyclopædias of surgery. First came the volumes of Bryant and Buck's work on Surgery, by American authors, and now it is closely followed by *Keen's Surgery*.

Volume I is the first of a series of five volumes which will appear in rapid succession. The men who have been chosen to write the various chapters are all well known surgeons. Bland-Sutton, Edmund Owen, Mayo-Robson, and Moynihan are the English surgeons represented in the work. From the Continent, Kocher, Gottstein, and Lauander are collaborators.

There is nothing new in the arrangement or scope of Volume I. The Narrative of Surgery is written by James G. Mumford of Boston and presents the subject in a most scholarly way. There are some periods, however, which are given slight notice.

Surgical Physiology is discussed by George W. Crile of Cleveland. Those who know the author will appreciate the thought and study which he has given to this chapter. It is a much neglected subject which has been presented classically to the reader. The clinical application in operative surgery is thoroughly discussed.

The chapter on Examination of the Blood is an important one. Eugene A. Smith has written the chapter on Traumatic Fever, and gives a good classification and description of Traumatic Aseptic Fever, Septicemia and Pyemia.

The chapters by Bland-Sutton on Tumors, and Crile on Wounds and Contusions, deserve special mention.

VOLUME II.—In the first chapter Edward H. Nichols, of Boston, deals with the Diseases of the Bones. The subject of Osteomyelitis is especially valuable, dividing the subject as he does into the various stages. Tumors of Bone are rather slighted.

The chapter on Fracture is written by Danied N. Eisendrath of Chicago. The entire field has been covered. There is a tendency to the description of elaborate dressings where more simple ones might answer. The illustrations are good but many are not original. The same author writes on Dislocations.

The remainder of the volume is devoted to the Surgery of the Joints, Muscles, Lymphatics, Skin, Nerves, Spine, and Orthopedics.

Diseases of Children, a manual for students and practitioners by GEO. M. TUTTLE, M.D. Lea's Series of Pocket Text-Books, edited by BERN B. GALLAUDET, M.D. Second Edition. Lea Brothers, Philadelphia, Pa.

This is more than a pocket text-book, being a book of 392 pages. It is a condensed compilation of the essentials of the diseases of children, put in readable form, clear, concise and yet sufficiently complete for the medical student during his course at college, when the time at his disposal for reading is limited. It is not a quiz-compend as this term is generally used, but a brief text-book in contradistinction to the manual or treatise. It is well written, unusually free from errors, well printed, and a handy volume for rapid review of the whole subject. On this account it is to be recommended to those who wish to refresh their minds on the main feature of the diseases peculiar to children and the more general diseases as they appear in infants and young children.

ELIAS H. BARTLEY.

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INFANTILE SCORBUTUS.

By JOHN LOVETT MORSE, A.M., M.D.,
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ALMOST every physician is now familiar with the appearances of a well-marked case of infantile scurvy. He has a picture in his mind of a pale, poorly-nourished infant with gums swollen and bleeding, legs swollen, tender and exquisitely painful on motion, and covered with ecchymoses. My experience leads me to believe, however, that the majority of physicians do not recognize the early symptoms of infantile scurvy, but mistake them for those of other conditions, among which may be mentioned especially rheumatism and difficult dentition. The frequency with which not only the milder, but also the more severe, cases are overlooked is shown by the fact that of thirty cases seen by me in consultation with other physicians, the true nature of the illness had been recognized in but five. In addition to rheumatism and difficult dentition it had been mistaken for rickets, Pott's disease, hip disease, periosteitis, gout, nervousness, infantile paralysis, syphilis of the cord, strain, injury, tuberculosis, gumma of the eye, acute nephritis, tumor of the bladder, uric acid poisoning and arsenical poisoning. In several other cases, moreover, the physicians frankly stated that they had no idea what the trouble was. In most instances the physicians were either not acquainted with the disease at all, or, if so, were not familiar with the early symptoms, or were led astray by the prominence of individual symptoms.

My own experience includes about sixty cases of the disease. Seven of these have developed under my own observation; the others were seen in consultation, at my office or in the hospitals. Judging principally from the observation of my own patients, I feel sure that the more definite symptoms of scurvy are always preceded by a period of loss of appetite, slightly disturbed digestion or irritability and malaise. These are accompanied, or soon followed, by pallor and failure to gain in weight. After a period of a few weeks, or sometimes months, more characteristic symptoms appear. In one-half of my cases the earliest symptom noted was tenderness on handling. Swelling or discoloration of the gums was the first symptom in about one-fourth, and hematuria in nearly as many more. In other cases paralysis, swelling of an extremity or ecchymoses were the first signs noted. It is probable, however, that in these also there had previously been tenderness.

The suddenness of the onset and the severity of the early symptoms varied greatly in different cases. In one, for example, the gums were swollen for six months, and in another there was

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*Read at the joint meeting of the Pediatric Section and the Medical Society, County of Kings, June 18, 1907.

hematuria for three months before the appearance of tenderness, while in still another there was tenderness in the legs for two months before there was any swelling. In one case there was the history of a fall with immediate loss of power and pain in one leg; in another marked swelling of the leg developed in forty-eight hours after a fall; while in still another a fall on the floor was followed by immediate loss of power in the leg, this in turn being followed in five weeks by inflammation of the gums.

The early characteristic symptoms of scurvy may, in a general way, be divided into three groups: In the first and most common group tenderness is noted when the baby is handled, generally when it is being given its bath. This tenderness is usually in the legs, but sometimes apparently in the back. The tenderness and pain on motion gradually increase and the baby ceases to use its legs, usually holding them with the thigh partially flexed on the abdomen and rotated outward, and the leg partially flexed on the thigh. Sometimes the baby ceases to use the legs before tenderness is noted. The tenderness is usually soon followed by swelling and discoloration of the gums. It is this class of cases which is mistaken for rheumatism, growing pains, paralysis and injury.

In another group swelling and a purple discoloration of the gums, especially about the upper incisors, is the first symptom noted. These changes seldom develop unless there are teeth, but may sometimes appear before the teeth have erupted. In some instances they are present only at the posterior edge of the gum behind the teeth. This condition of the gums may persist for weeks before other symptoms are added. It is this class of cases which is most often mistaken for difficult dentition, and in which the gums are repeatedly lanced with, of course, no relief of the symptoms.

In the third group the first symptom is hematuria. Attention is usually called to it because the urine stains the diapers brown or red. This condition may persist for weeks or even months without the development of other symptoms of scurvy. It is this group which is most seldom recognized. The true condition is usually entirely unsuspected, and diagnoses of acute nephritis, tumor of the bladder, uric acid infarction and so on, are made.

If the significance of these early symptoms is not appreciated and the true condition not recognized, and consequently not treated, the disease goes on from bad to worse. The general condition steadily deteriorates, although, in many instances, the failure is not as great as would be expected. Swellings develop in the extremities, usually in the legs. These swellings are due to subperiosteal hemorrhages and are consequently limited to the diaphyses. They are exquisitely tender, but not hot or red. They occur most commonly over the lower portions of the femora and the upper portions of the tibiæ; next most frequently about the lower portions of the tibiæ, the upper portions of the humeri and the lower portions of the bones of the forearm. The joints themselves are never involved, except in the severest cases, in which the hemorrhage under the periosteum sometimes perforates the periosteum, causes a separation of the epiphysis, and finally breaks into the joint. It is these extremely severe cases that are mistaken for periosteitis, osteomyelitis and sarcoma. There is usually no œdema of the skin and subcutaneous tissues over the swellings in scurvy. There sometimes is, however, so that too much importance must not be placed on the presence of superficial œdema in the diagnosis between inflammatory bone lesions and scurvy. Subperiosteal hemorrhages may also develop over the ribs or the bones of the skull. Hemorrhages in these localities are, however, very unusual. No one who has not seen one of these bad cases of scurvy can realize how terribly sensitive the extremities are and how fearful the babies are of being handled. I have never seen such an expression of abject terror in any other condition as in infantile scurvy.

Sooner or later, in neglected cases, hemorrhages occur in other situations, most commonly in the skin. These hemorrhages are usually in the form of small purpuric spots, but may involve large areas. Hemorrhages also sometimes occur in the roof of the mouth. Hemorrhage into the eyelids is not at all uncommon, and is usually attributed to some injury. In rare instances hemorrhage may occur in the intestinal wall and cause abdominal symptoms with the presence of a tumor. In several instances this condition has been mistaken for intussusception. Hemorrhages occur in the bone marrow as well as under the periosteum, but, of course, give rise to no symptoms. In spite of the hemorrhagic diathesis which is the immediate cause of so many of the symptoms of scurvy, external bleeding is extremely unusual. Hematuria, recognizable macroscopically, occurs in about one-third of the cases, and blood can be found microscopically in about 60 per cent. Acute nephritis and pyelitis are not very uncommon.

It is usually stated that scurvy is not accompanied by fever. While this statement is in general true, there are, nevertheless, many exceptional cases in which the temperature runs as high as 103° F. or 105° F. without there being any complications. Unless this fact is remembered, the presence of fever may cause much confusion in diagnosis. In a certain number of cases the pyrexia is due to an unrecognized complicating pyelitis.

Summed up briefly, my experience as regards the symptomatology of scurvy is as follows: The earliest symptoms of scurvy are anorexia, irritability and malaise, and slight disturbances of digestion. These are quickly followed by loss of color. The first symptom to attract attention and to justify the diagnosis of scurvy is most often tenderness or pain in the legs or back on handling. Swollen and purple gums, or hematuria, may, however, precede the tenderness and pain. Tenderness and pain on motion of the extremities almost always develop sooner or later, and in neglected cases are soon followed by swelling about the diaphyses. The legs are affected about three times as frequently as the arms. The gums are almost always affected when there are teeth, very rarely when there are no teeth. The upper jaw is affected much more often than the lower. Hemorrhages, except under the periosteum, are comparatively uncommon in the earlier stages.

The order in which the symptoms develop and the intervals at which they make their appearance vary materially. The onset may be very sudden, or very insidious. Mild symptoms may persist in some instances for weeks, or even months, before the development of others, while in others several symptoms may appear together or in rapid succession, the typical picture of the disease being developed in a few days.

Scurvy develops most often during the second six months of life. Improper hygienic surroundings, congenital or inherited debility, and the presence of other diseases, whether or not of nutrition, have no influence on the development of scurvy unless, possibly, indirectly by weakening the general resistance. The condition of the digestion has no influence on the development of scurvy. There is no connection between rachitis and scurvy. It almost never develops in exclusively breast-fed infants, although I have seen one well-marked case in such a baby. The farther the food is removed in character from the natural food of an infant the more likely is its use to be followed by the development of scurvy. It is most likely to develop in babies which are fed on the various proprietary foods prepared with water. It is next most likely to develop in babies fed on the various proprietary foods mixed with milk, but in which the mixture is overheated. It is more likely to develop in suitable milk mixtures which are heated than in those which are unheated. It may also develop in unheated mixtures which are too weak or are in some other way unsuitable for the individual infant. In only one case of my series was a rational unpasteurized mixture being taken, and that was prepared with barley water instead of with water. My experience leads me to believe, therefore, that the absence of "freshness" in the food and overheating of the food are, as well as the composition, very important elements in the production of scurvy. Various explanations have been given of the apparent relation between the overheating of milk and scurvy. Stooss attributes the trouble to destruction of the ferments; Netter to alteration in the citric acid salts; Cronheim and Müller to disturbances in the absorption and retention of calcium. Various attempts have been made to produce scurvy artificially in animals. Bolles thought that he had produced it in guinea pigs by using highly sterilized milk, but Bartenstein found that the animals died of enteritis, whether the milk was cooked or not, and that both the fatal outcome and the alterations in the bones were due to the milk as milk, and not to the sterilization. He was unable, moreover, to produce any symptoms whatever by feeding young hounds, for long periods, on sterilized cows' milk.

Certain authors believe that there is no connection between the sterilization of the food and scurvy. They claim that the disease is almost invariably preceded by digestive disturbances or gastro-enteritis, and that it is merely a manifestation of autointoxication, of exogenous intoxication or of a hemorrhagic infection. They say that this explains why it occurs in chronic dyspeptics, and why, in such conditions, changing the food ameliorates and cures the disease. Changes in the food also change the local conditions in relation to the growth of bacteria, and hence prevent the formation of the toxic products of bacterial growth which they say cause the disease. Their arguments are not convincing, however, and are not generally accepted.

Although much work has been done in recent years in relation to the etiology of scurvy, we can still safely accept the conclusions of the committee of the American Pediatric Society in 1898, that "the development of the disease follows in each case the continued employment of some diet unsuitable to the individual child," and that "the farther a food is removed in character from the natural food of the child the more likely its use is to be followed by the development of scurvy," as expressing all that is really known about it.

The pathology of infantile scurvy is the same as that of scurvy in adults, modified, to a certain extent, by the fact that the tissues, at this age, are young and in the process of active growth. They are primarily those found in disturbances of nutrition in general, to which are added local changes in various organs due to the hemorrhagic diathesis which develops in the disease. The most marked changes are found in the bones, which are especially involved at this age because of the fact that they are in process of growth, and hence peculiarly vulnerable. These changes consist primarily of hemorrhages under the periosteum and into the bone marrow. As the result of the hemorrhages into the bone marrow, fibrous changes develop in the marrow, and atrophy of the bone takes place. This may, in turn, weaken the bone to such an extent that it is easily fractured. All of these changes rapidly and entirely disappear during convalescence.

Something has already been said, in a general way, with regard to the differential diagnosis of scurvy from other conditions. It seems worth while, however, to take up in detail the diagnosis from certain of the diseases for which it is most commonly mistaken. In the first place, it should always be considered when babies lose their appetite, fail to gain, are irritable, losing color and generally unsatisfactory. It is surprising how many of these babies will immediately begin to improve when the treatment for scurvy is instituted.

The diagnosis of rheumatism is often made because of the pain and swelling in the extremities. Rheumatism practically never occurs at this age. If it does, it is seldom accompanied by swelling or localized tenderness. If it is accompanied by these signs, they are in or about the joints and not over the shafts of the bones, and are associated with heat and redness. Rheumatism is usually accompanied by fever; scurvy is usually not. Rheumatism is not accompanied by swelling or discoloration of the gums, hematuria and ecchymoses; one or more of these signs is usually also present in scurvy.

Periosteitis and osteomyelitis are also sometimes thought of because of the swelling and tenderness in the extremities. In these conditions the trouble is almost always limited to one extremity and usually to one bone. The tenderness is more sharply localized. In periosteitis there is often superficial heat and redness. Œdema is more common in these conditions than in scurvy, but may occur in both. The temperature is always high in these diseases, but a high temperature does not rule out scurvy, as it may also be present in this disease. The general condition is much worse in these diseases. They have a marked leucocytosis, and are never accompanied by other signs of scurvy, such as swollen and purple gums, hematuria and ecchymoses.

Hip disease is also often thought of for the same reasons. Tubercular hip disease is very unusual at this age. In it the limitation of motion is in the hip joint and the swelling, if present, is in or about the joint, not over the lower portion of the diaphysis. It is usually unilateral, and is not accompanied by the other signs of scurvy. Acute infectious arthritis of the hip can be distinguished from scurvy in the same way as are osteomyelitis and periosteitis.

Scurvy is often mistaken for an injury, because of the pain on handling and motion, and the failure to use the extremity. This mistake is especially likely to be made when the onset of the symptoms is acute. Too much importance is attributed to the history of a fall, strain, or injury of some sort, which can be elicited by suggestion and careful questioning in every case. No confusion should arise, however, if the symptomatology of scurvy and that of the various injuries under consideration are carefully borne in mind.

Various forms of paralysis, especially the infantile, are often considered, on account of the apparent loss of power in the extremities. The failure to use the extremities in infantile paralysis is due to a real loss of power and the extremity is flaccid and not tender. In scurvy the failure to use the extremity is due to pain. It is held rigidly, is tender, and passive motions cause pain. There is never swelling in paralysis; there often is in scurvy. Other signs of scurvy are never present in infantile paralysis. Infantile paralysis, moreover, almost never occurs at this age. The onset of infantile paralysis is sudden, that of scurvy slow. Multiple neuritis has a more general distribution, almost never occurs at this age, is accompanied by wasting, never by swelling, and never by other signs of scurvy.

Scurvy is often mistaken for difficult dentition, because of the swelling and discoloration of the gums. It is difficult to understand how this mistake can arise when the swelling and discoloration develop, as they usually do, about teeth that are already erupted. It is easier to understand, however, when they develop about a tooth which is only partially erupted, and still easier when they develop before the eruption of the teeth. This, however, very rarely happens. The color of the swelling and the peculiar sponginess of the gums in scurvy are entirely different from the conditions seen in difficult dentition, and ought never, therefore, to give rise to confusion if the gums are carefully examined.

It is not surprising that the scorbutic nature of hematuria, especially if the urinary sediment shows some of the signs of acute nephritis, is usually not recognized, the fact that hematuria may be the earliest, and for a time the only, symptom of infantile scurvy not being at all generally known. Hematuria, however, is a very rare condition in infancy, except as a manifestation of scurvy. Its presence should, therefore, always suggest scurvy. It is usually impossible to make the diagnosis between hematuria due to scurvy and that due to other conditions, however, without the use of the therapeutic test; that is, the administration of fresh fruit juice. This will cure the condition promptly if it is due to scurvy.

Fresh fruit juices act as a specific in scurvy. The disease yields to them whether or not the food is corrected. Either lemon juice or orange juice may be given. The latter is usually taken better, however, and is, therefore, the more satisfactory. In fact, babies with scurvy almost always like orange juice, aparently feeling the need of it. It is far better to give a definite amount of orange juice than to prescribe the juice of a half or a whole orange daily. My experience is that two tablespoonfuls of orange juice daily are usually necessary to control the disease. No better results are obtained with larger doses. It is best given about an hour before a feeding, as it is thus less likely to upset the digestion.

Freshly expressed beef juice also has a curative action, but it is much less rapid and less certain in its effects than fruit juice. The English claim a great deal for potatoes. Personally, I have never used them.

Although babies will recover from scurvy while taking the same food which caused it, if fruit juice is given, yet it is much wiser to change the food. As in all disturbances of digestion and nutrition in infancy, breast milk is the best food. If this is not used, the baby should be given the only rational substitute, i. e., some modification of cows' milk. This should never be sterilized, and should not be pasteurized unless the character of the milk supply and the time of year make it necessary. Peptonization should also be avoided, if possible. In short, the food should be made as rational as possible, and everything tending to destroy "freshness" omitted as far as the circumstances permit.

Many cases of scurvy will recover when the food is changed, even if fruit juice is not given. Recovery in these cases, however, is always slower and very uncertain. Strange as it may seem, it sometimes takes place when the food is changed to one which is apparently less suitable than the one on which the scurvy developed. Such improvement is very difficult to explain.

Drugs and other methods of treatment are absolutely useless, except that temporary immobilization of the extremities will relieve the pain during the few days required for the fruit juice to cure the disease.

Pain and tenderness are usually the first symptoms to yield to treatment, and are soon followed by the return of power in the extremities. Improvement in the condition of the gums usually begins later and progresses more slowly. The disappearance of the swelling about the bones is, as would be expected, always slow. Marked improvement in the swelling, even if extreme, is usually noticeable in a week.

The mildest cases are usually well in two days, and many cases are entirely well in five days. Almost all show marked improvement in three or four days. Pain and tenderness are almost always gone in one week, while the gums are rarely normal before one or two weeks. Most cases are well, except for the remains of swelling and hemorrhages, in two weeks, while recovery is almost always complete in three weeks.

How soon the improvement may begin and how rapid it may be is shown by the following extracts from letters written by parents of some of my patients: "Immediate improvement"; "better in twenty-four hours, kicking in forty-eight hours"; "different baby in a week"; "progress simply marvellous"; "immediate response to treatment"; "improvement before taking the juice of a whole orange."

70 Bay State Road, Boston, Mass.

THE PATHOLOGY, ETIOLOGY AND MANAGEMENT OF OBSTRUCTIVE HYPERTROPHY AND ATROPHY OF THE PROSTATE.*

By PAUL M. PILCHER, A.M., M.D.,

BROOKLYN-NEW YORK.

IN April, 1905, I presented a paper which was the result of an exhaustive pathological study of the prostate gland in its relation to obstruction to the normal expulsion of the urine from the bladder. Up to that time it had been universally taught that hypertrophy of the prostate was probably secondary to a chronic prostatitis which was consequent upon an attack of gonorrhœa, or due to some other active infection. I had been able to study the histories, and knew, professionally, twenty-three patients who were operated on for this disease, and I was more than ever impressed with the fact that, in the majority of these cases, at least, gonorrhœa could not be considered an etiological factor. In a résumé of my work at that time it was stated (1) "that obstructive hypertrophy of the prostate resulted from glandular overgrowth, influenced by the degenerative changes of old age and of other agents which tend to produce the formation of fibrous connective tissue in an actively functionating gland; (2) the theory of obstruction to the ducts causing passive dilatation of the glandular elements, as advanced by Ciechanowski and Crandon, does not satisfactorily explain the pathological findings; (3) gonorrhœa is not an important etiological factor in the production of this disease, and there is no necessity for assuming it to be."

The theories advanced in this paper at that time have been more than substantiated in the experience of other men, and it is now generally accepted that chronic prostatitis is not the precursor of obstructive hypertrophy of the prostate, except in a few cases of the dense, fibrous type. The conclusions of Ciechanowski were based upon the study of prostates removed from patients after death, who had not suffered during life from obstructive symptoms and, naturally, the findings were misleading. The other school, as headed by Velpeau, studied, on the other hand, simply the glandular types of overgrowth, and their conclusions were biased.

After further study and observation of more than twenty-five new cases, my conclusions have been altered but little. We still recognize the three types of prostates causing urinary obstruction: (a) The large, soft type, glandular in character; (b) the hard, small, contracted type; (c) the mixed type. Of the second type mentioned, the hard, small, contracted type or the hard, fibrous type, five new cases have been observed; the ages of these have been, respectively, 77, 62, 66, 64, 58. In four of these cases there was a history of posterior urethritis; in one case no history could be elicited. These would seem to indicate that a chronic prostatitis probably preceded the disease in these cases. Of the cases presenting specimens of the two other types, the majority of the patients gave absolutely negative histories of any venereal disorder.

It is, however, of no great moment to the patient whether or not we know the exact cause of the adenomatous or fibrous change which has taken place in the prostate itself; it is more important to determine the condition of the other organs which have been damaged by the presence of this diseased gland. In the first place, the two most distressing symptoms are the increased frequency of urination and the obstruction to the passage of the urine; the surgeon must understand the pathological conditions which bring about these symptoms.

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*Read in part before the Brooklyn Pathological Society, April 11, 1907.

The urethra is elongated, its course is tortuous, its lining mucous membrane is congested and, possibly, ulcerated; the urethral orifice of the bladder is entirely changed; the contour of the prostate is such that, as a rule, a bar or mass of tissue is formed at the beginning of the urethra; the trigone becomes edematous and, at times, almost fibrous in character; the base of the bladder forms a pouch behind the prostate, and in it is collected urine which the ordinary muscular efforts of the bladder cannot expel. At first the walls of the bladder hypertrophy and thicken, and the capacity of the bladder is much lessened, necessitating the frequent voiding of urine. Trabeculæ are formed on the inner wall of the bladder; small pouchings of the wall are seen; the mucous membrane of the bladder becomes congested; the retained urine of the post-prostatic pouch becomes alkaline; and phosphatic concretions are deposited on the walls and tend to the formation of calculi in the bladder. Later there is muscular atony, with dilatation of the bladder and fibrous degeneration of its elements. When chronic retention supervenes, the bladder is distended and the walls are much thinned.

It was formerly supposed that the pathological change in the walls of the bladder was so great that it could not regain its tone sufficiently to carry on the normal function of the bladder, but our experience has been that in almost all cases where the obstruction has been removed, the bladder did regain its tone to a certain degree.

NAME. **PROSTATIC HYPERTROPHY.** YEAR
SERVICE NO.
OPERATION NO.

P. O. Address Physician
Address
Age Social State Occupation
Sexual History: Years Married No. Children Frequency of Coitus
Present Sexual Vigor Gonorrhea?
Obstructive Symptoms: Increased frequency of urination, for years,
Complete Retention
Use of Catheter
Development of Cystitis
Present Condition: General Urination: Day Night
Urinalysis:
Examination: Urethral Distance Residual Urine
Rectal Palpation
Preliminary Treatment:
Operation: Date Operator
Assisted by Drs.
Length of time till enucleation completed
Length of time for Hæmostasis, Suture and Dressing
Steps of Operation
Character of Mass removed
Weight Vesical Calculi

I. Style of Card Used to Record History.

Following the dilatation of the bladder, the ureters become affected and, in turn, the kidneys feel the increased pressure; atrophy of the structure of the kidneys results, and fibrous hyperplasia is seen. When infection takes place, all of the symptoms are intensified, and there is added, as well, pain and often hemorrhage from the bladder and the prostatic urethra. Vesical calculus is present in about 25 per cent. of the cases, but is not always discovered at operation. The presence or absence of a vesical calculus in these cases can only be determined with any degree of certainty by the use of the sound or the cystoscope.

In order to judge what the results of operative interference in any given case may be, it is necessary to know to what degree the pathological changes have advanced, for if we know definitely the conditions present, we are better able to advise the method of attack which should be instituted.

EXAMINATION.

A systematic examination should be made: (1) *By the catheter,* to ascertain the amount of residual urine and to obtain urine for examination; also to find the capacity of the bladder and the condition of the kidneys.

(2) *By the use of metal instruments,* to determine the presence of strictures and the degree of prostatic obstruction.

(3) *By the use of the cystoscope,* to determine the exact condition of the bladder, the presence or absence of a median enlargement of the prostate, and to detect the presence or absence of calculus.

(4) *By rectal and abdominal examination.*

RECORDING AND PRESERVING THE HISTORY.

In order to systematically record the principal points in the history of prostatics, and to preserve the facts concerning the operation and the post-operative history, a printed card is used, of which the following is a copy:

REVERSE SIDE.

POST OPERATIVE HISTORY Shock

Kidney Function
Removal of Drains Gauze Tube
Bladder Irrigations
Introduction of Sounds
Allowed up
Bladder Sphincter becomes competent
Epididymitis
Flow of Urine through urethra begins
Perineal Urination ceases
Perineal wound cicatrized
Discharged from Hospital
Condition at time of Discharge

AFTER HISTORY: At end of three months: Frequency
Continence of Urine Residual Urine
Cystitis Sexual Vigor
General Health

Style of Card Used to Record Post-operative History.

EDUCATION OF THE PATIENT.

All patients who are subjects of prostatic disease are well advanced in years and, as a rule, will pay strict attention to the advice and counsel of the family physician. In the first place, the patient should be instructed carefully as to the nature of his malady; the anatomy of the parts involved should be explained to him, in order that he may appreciate exactly the problem which the physician has to solve. He then should be instructed as to the varieties and uses of the different appliances which are used in treating the case, while the necessity of absolute cleanliness and the sterilization of all instruments used should be carefully explained. The supplies —such as catheters, sterilizers, catheter cases, lubricants and antiseptics—should be obtained by the physician in charge, the patient should be trained in the proper care of each article and the importance of aseptic procedure again and again be forced upon his attention.

It is not necessary to rush at once into the hands of the specialist, but every case should be seen in the first stage of the disease by a consultant, and the physician instructed in the proper care of the individual case. The patient should be instructed as to the sources of complications, being warned against the indiscriminate use of drugs, the use of undue force in catheterism, and the necessity for early consultation with his physician whenever a complication arises. Above all, the physician should be straightforward in his dealings with the patient.

MANAGEMENT OF THE EARLY STAGES.

The first symptom which draws the patient's attention to his condition is increased frequency of urination; this is more apt to be noticed at night, although the frequency is not more marked at that time, but is brought more forcibly to the attention of the patient, because of the inconvenience. This increased frequency is due to congestion and swelling of the parts situated at the vesical neck; at the same time the bladder does not entirely empty itself, and the capacity is smaller on account of the constant presence of residual urine. The residual urine acts as an active irritant to the base of the bladder, and this increases the intolerance of urine in the viscus. If frequency of urination exists alone, without any marked retention, it is not best to advise regular catheterism; the greatest relief will be obtained from proper regulation of the patient's habits. Moderation in all things is most essential. The patient should be taught to live by schedule; the amount of sleep, the time of eating, the amount of exercise, the character of his food and drink, and the amount of intellectual endeavor, all should be carefully regulated; if possible, a bath should be taken each day, the bowels should move once a day, the urine should be voided at regular intervals of three or four hours, and, above all, the patient should avoid taking cold or exposing himself to dampness and extremes of temperature. A proper diet must be selected for each individual case; as a rule, all vegetables, with the exception of potatoes and tomatoes, may be freely allowed; poultry is better than the other meats; milk is especially good, but eggs oftentimes are not well borne. The moderate use of alcohol may be allowed in some cases, dependent upon the former habits and present needs of the patient. Drugs are useful to regulate the acidity or alkalinity of the urine, to lessen the local congestion of the bladder, to control the cystitis, and for the regulation of the bowels.

The *second stage* of the disease is marked by occasional retention of urine; in this stage there is always a certain amount of residual urine which may be suddenly augmented by indiscretions on the part of the patient. Sudden congestion of the neck of the bladder may be brought on by inordinate eating and drinking, excessive exercise and exposure to extremes of temperature. The retention may be simply an increase in the amount of residual urine with increased frequency of urination as a consequence, or there may be a temporary, but absolute, retention. It is at this stage that the catheter life of the patient must be begun.

There are three types of catheter which are used by the physician in the relief of the retention; first, the soft rubber catheter, which should have a solid tip and a molded eye, and in attempting to relieve an acute retention such a catheter—of large size, preferably No. 26 French—should be first tried. If it be necessary to introduce the patient to catheter life, he should be supplied with a No. 22 French rubber catheter and should be carefully instructed in its use. Cleanliness is by far the most important feature of the technique which should be insisted upon. The patient may obtain a small catheter case which can be carried in the pocket; if the catheter be washed carefully with soap and water each time it is used, rinsed in hot water, wiped dry with a clean towel and deposited in a proper catheter case containing a piece of gauze saturated with formalin, if the parts surrounding the meatus be washed with soap and hot water each time, if an antiseptic lubricant—which can be procured in tubes—be used, and if the catheter be immersed in boiling water each day, it is as much as can be expected from a patient who is to use the catheter more than twice a day, and, in fact, is a great deal more than is accomplished in the majority of cases which lead a catheter life. It is best not to confuse the mind of the

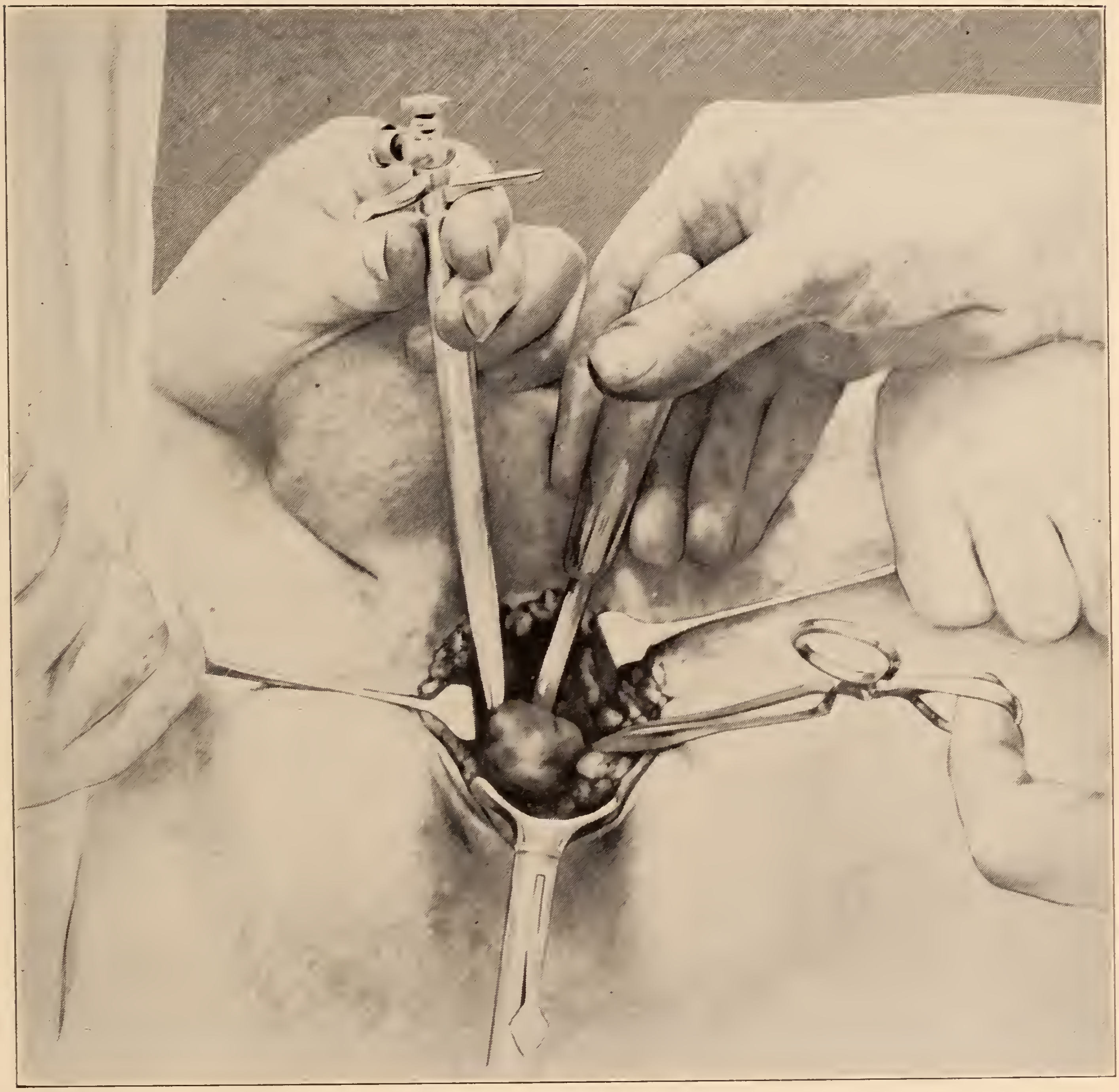

Fig. III. Exposure of the Prostate by the Perineal Route.

patient with a lot of rules for disinfection, which, as we know from experience, will not be carried out. In the case of patients who need to use the catheter but once in twenty-four hours, the procedure may always be done at the patient's home, and the proper boiling of the catheter before using may be insisted upon and accomplished in each case. A patient properly started in this way will, as a rule, continue the proper sterilization of his instruments as the disease advances.

The question arises as to how much good may be done by, and what the indications are for, regular catheterism. Vesical atony and bladder irritability may be prevented in the first instance, and very much lessened in the latter instance, by habitual catheterism; this should be done once a day if there are four ounces of residual urine, and twice a day if there are six or more ounces of residual urine.

The webbed or silk catheter and the metal catheter should be used only by the physician. In the advanced cases it is often necessary and, in fact, of great advantage, for the physician when called upon to relieve an acute retention, to use a metal catheter of large size; this, however, should be used only by one experienced, for a great deal of damage may be done in cases of acute retention where the vesical neck is congested.

MANAGEMENT OF COMPLICATIONS.

Retention of urine can hardly be considered a complication, as it is always present in the disease, but the ordinary complications may be enumerated as stricture, cystitis, atony of the bladder, stone in the bladder, acute dilatation of the bladder, hemorrhage from the bladder, abscess of the prostate, epididymitis, orchitis, nephritis, and uremia. The avoidance of cystitis depends upon the avoidance of infection; atony of the bladder, upon the proper emptying of that viscus by habitual catheterism; the presence of stricture increases the residual urine and the liability to cystitis; the stricture should be treated by dilatation, or surgically by division with the knife, and, in the presence of stricture, acute retention of urine may be a very serious complication. It is seldom that a pathological change in the prostate itself prevents the catheterism, but a stricture may be so tight that catheterism is impossible, when there remains the choice in three procedures: a suprapubic puncture with the aspirating needle; the sectio alter, or suprapubic cystotomy, with the establishment of a vesical fistula; or a perineal section with division of the stricture; the choice between them depends upon the individual case. Stone in the bladder calls for the same treatment as if hypertrophy of the prostate were not present, with the exception that, in the presence of a severe cystitis, a suprapubic cystotomy will often greatly relieve the pain and result in an abatement of the inflammatory conditions of the bladder. Abscess of the prostate and the other complications are best handled by a surgeon who is versed in their treatment. It often happens that where there is a complication—be it cystitis, calculus, or a hemorrhage—relief of this alone will make the patient's life bearable without the more dangerous operation of prostatectomy.

MANAGEMENT OF THE LATER STAGES.

Hemorrhage, large calculi, incontinence, habitual retention, abscess of the prostate, atony of the bladder, and continuous desire to pass water, accompanied by pain day and night, are the features which mark the later stages of the disease and call for radical treatment; in some cases a suprapubic cystotomy with a permanent fistula, or a perineal section with permanent perineal urinary fistula may be done; of these two the former is generally to be preferred, although there are cases in which the perineal section is of advantage. A large stone may be removed from the bladder, under local anesthesia, by suprapubic cystotomy in cases where a prostatectomy could not be attempted. The relief of the pain and the subsidence of the cystitis following this operation may allow of sufficient recuperation to make the operation of prostatectomy feasible. Continued hemorrhage and the other complications almost invariably call for opening the bladder, the extent of the operation being controlled by the strength of the patient and the conditions found at the time of the section. Malignant disease of the prostate can be treated in the early stages by enucleation of the gland, and in later stages by suprapubic drainage of the bladder and opiates to relieve the suffering of the patient.

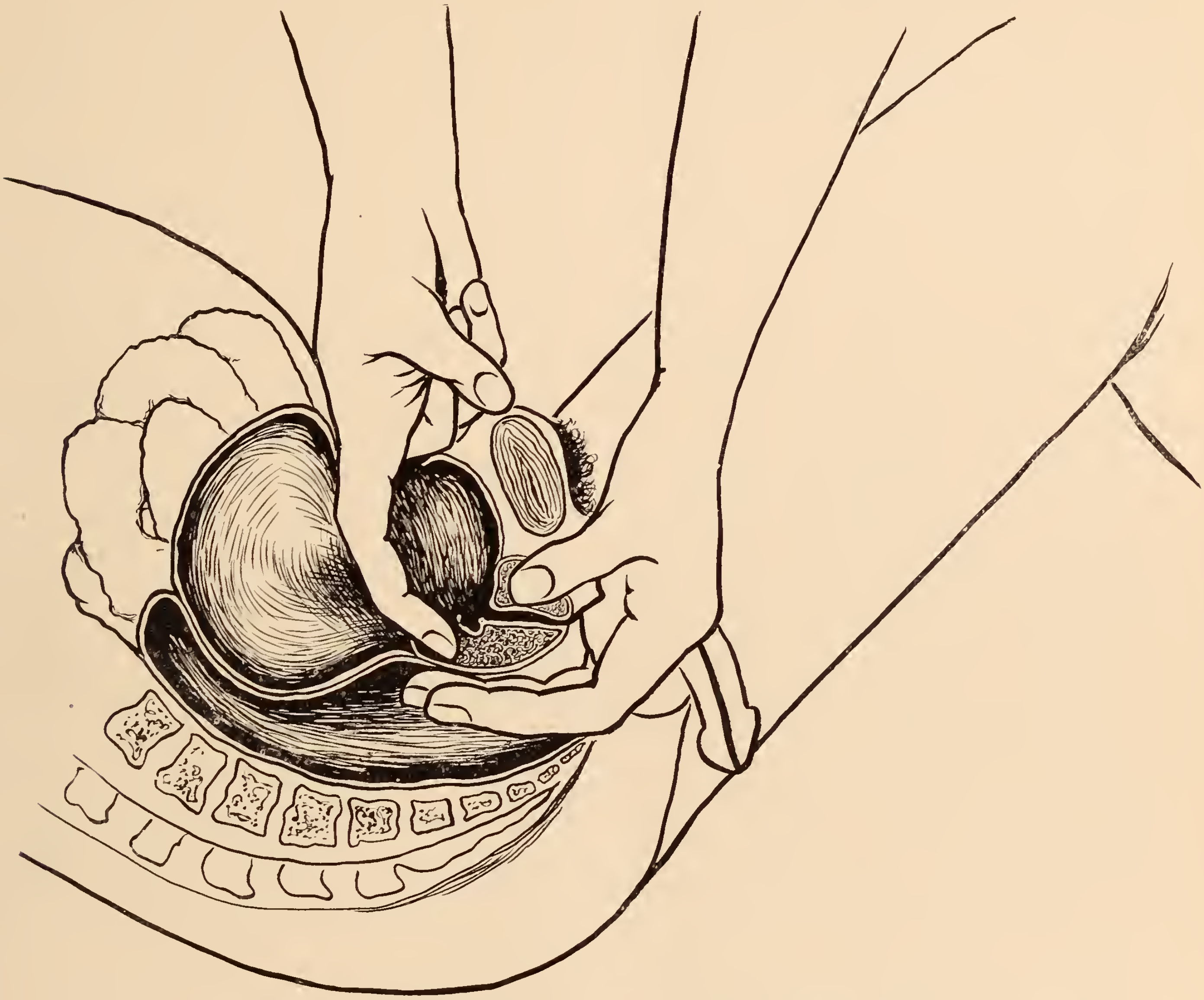

Fig IV. Method of Enucleation by the Supra Pubic Route. *(After Guiteras.)*

SELECTION OF CASES FOR OPERATION.

The selection of a case for operation and the selection of the operation which is best suited to each individual case must be left entirely in the hands of the specialist in this branch of surgery. Many of the simpler and seemingly less complicated operations which have been proposed, which are incomplete and are followed by temporary relief and often by a recurrence of the obstruction are no safer oftentimes than the radical operation of prostatectomy. If the prostate be attacked at all, it is best to remove it entirely, or at least this has been our experience in a series of fifty cases.

The old operations of orchidectomy and vasectomy are not to be recommended. In some cases a suprapubic prostatectomy is preferable, more especially in cases of the large adenomatous type of prostate. The perineal operation is to be preferred in the majority of cases, and always in the hard fibrous type of prostate.

WHY IS A PARTICULAR CHILD RIGHT-HANDED OR LEFT-HANDED?

By GEORGE M. GOULD, A.M., M.D.,

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IF, as I believe, the study of civilized people shows that the special incidence of right-handedness, and of left-handedness, and of mixed types, is governed directly by ocular dominance, and only indirectly and partially by heredity, a thorough understanding of the subject will be gained by a preliminary look at the precedent animal function and habit. And this is epitomized as right-eye dominance of general dextral or right-side function, and left-eye dominance of general sinistral function. To begin with, embryology demonstrates the existence of vision long before muscles, so that historically and evolutionally vision governs motility; the very cleavage of the brain in the two so independent halves of all types was doubtless due to the unilateralism and independence of ocular function. The more primitive the type the more on one side of the head was the governing eye, and the more independent it was of its fellow upon the other side. A motion to strike one eye from its side does not cause the other eye to wink or to protect itself or the animal from injury. One eye governed one side of the body (because vision must incite and control all action), especially the co-ordinated front foot of that side, but also the hind one of that side to a less degree or less accurately; and the other eye acted for the other lateral organs in the same way. Fewer and less accurately co-ordinated commissural fibers between the two hemispheres were then necessary than when later complication and specialization arose. It is evident that when one eye was placed upon one side of the head, not looking forward, and separated from the other by a protruding mass of organs and bony structures, it must act independently of the other, to see objects upon that side of the body, to protect it, and to govern the muscles of its side. So long as the forefeet are equally used, i. e., so long as no differentiation of their function arises, there can be no question of the existence of right-handedness, or right-footedness. The chief, most frequent, most necessary of all animalian four-footed function is placing first one front foot, and then the other front foot, in the safe and right place and position, especially in rapid motion, fighting, defence, etc., etc. That placing of the right forefoot must be dominated by the right eye, and of the left forefoot by the left eye. There is simply divided dominance of the eyes, each supreme in the control of its correlated lateral organs. The peculiarities of the avoidance by a horse of a stone or log in the road, by, say, the right hind foot, the stone at the instant out of sight, and the right eye perhaps governing the avoidance of a similar impediment in front by the right forefoot, is a most instructive thing. The co-ordination of eye and front foot is more exact, and the very awkwardness of the hind foot is significant.

The approach toward binocularity, the advance of the eyes toward the front of the skull, the degree of forward-lookingness, if one may so speak, is measured and indicated by the progress toward parallelism of the ocular axes. Recapitulated, this progress towards parallelism is steady from lower to higher types, reaching complete parallelism only in man.

In the most civilized of humans, the literary and handicraft workers, the progress does not end with parallelism, but the ocular axes must be sharply converged upon a point 12 or 15 inches from the eyes for ten or more hours a day.* And with every step of this progress in human beings there must be a like increase of complexity in the inter-relations between the ocular government of common or bilateral movements and functions. The number of things to be seen by both eyes, and to be done by both hands, etc., is constantly increasing. But, *pari passu,* there is an equal differentiation and specialization of functions of the two hands. With every expertness gained, one hand is told off to that extremely specialized task, and the other perhaps to another, but at least never to the same. And still the old great rule, generally speaking, not only remains in force, but is increasingly observed: In the right-handed the dextral hand is chosen more and more for the heavier, the higher, more intellectual, more skilled, more difficult, more minute, more detailed task, and the left is still the holding, assisting, and complementary helper. In the left-handed the rule is reversed, but there is no inferiority in the expertness, etc., of the left hand in these cases, although 97 or 98 per cent. of their ancestors were right-handed.

The right-sided cerebral convolutions retain all the aptitude for governing skilled functions which the left half-brain possesses in the majority. The explanation of this seeming contradiction of evolutional law is seen in the recognition of the fact that "the ontogeny still repeats the phylogeny"—for right-handedness and left-handedness is not prenatal in origin. It begins with the infant's coincident function of eye and hand, and begins at the period of ontogenetic development corresponding to that of the phylum when fore-feet began to be used as hands, and when one hand began to be preferentially or necessarily used for a special task. In human historic development it emerges into clear view with the specialization of the left as the shield-hand and holding hand, and of the right as the spear-hand, the counting-hand, etc., and finally as the writing-hand. It is thus a late acquirement of the phylum. Thus the individual born now begins to acquire it, for either half-brain, at about six months of age, and the left-handed is as quick to learn it and is just as expert with his left hand as his right-handed brother with his right hand.

Two things need to be recognized, emphasized, and always borne in mind: First, there is no inheritance of completed mechanism, or even of predisposition towards it. Either cerebral hemisphere may be the seat of the speech-center, and it may innervate the more expert hand, with absolutely no inferiority of expertness in the less commonly chosen right half-brain.* Thus heredity has, directly, nothing whatever to do with the existence of 97 or 98 per cent. of right-handed, and 2 or 3 per cent. of left-handed. If those who are Mendel-crazed, or who see "the iron and adamantine law of inheritance" in everything, ever tried to trace such supposed laws in the incidence of right-handedness, they quickly abandoned the hunt. Because they found that here no such "iron law" exists (it exists nowhere, forsooth!), and that some other mysterious agency is at work, of which they could have no knowledge. "The wind bloweth where it listeth," and the least, or the most, investigation of actual cases shows that left-handedness or right-handedness arises most incongruously for the iron-law-of-heredity criers, has even nothing to do with heredity directly. For several generations, e. g., neither paternal nor maternal ancestors of two children were left-handed, and suddenly these two children are found to be left-handed!

Secondly, just as there is no endowment of right-handedness or left-handedness, as a completed mechanism, nor even of any sign of an inherited exceptional aptitude, so there is no completedness of the acquirement. Every baby of a year of age shows some beginnings of the peculiar expertness, but the progress in specialization and in the acquirement of kinds and degrees of expertness never ceases while life lasts. And there are as many mixes of peculiarities as there are individuals; there are almost as many anomalous as there are typical cases. As a rule, of course, the hand chosen for the most expert tasks is increasingly chosen, and people tend to fall into two great classes, the right-handed and the left-handed. All left-handed mechanics (and now everybody uses machines!) are handicapped and bothered by the fact that all machines, even to screws, are made for the right-handed. Not to be forgotten also is the number, large in the aggregate, of the right-handed who, by accident, injury, etc., lose the superior expertenss of the right eye, right hand, right leg or foot; and, conversely, the number of the left-handed who suffer similarly as regards their sinistral expertness. In such cases there is a transfer of task to the opposite organs, and a slow, difficult, and always imperfect expertness is acquired. But in every case there is a crippling, and a lessening of productive capacity, a disadvantaging in the struggle. And more surely is there a mixing from the ground up, or rather from the top of the head down, of hitherto co-ordinated and related functions. The center for the intermediation of an absolutely necessary psychic and neurologic datum to the engineered composite act has to be transferred to the opposite side of the brain. There is, of course, halting, indecision, slowness, or genuine inhibition of function because of the difficulty of correlating the data from the two sides of the brain. Many a case of stuttering, probably most, slowness and morbidities of speech, etc., are due to this division or misplacement of the innervating centers in opposed cerebral hemispheres—all bound with right-eyedness, right-handedness, or the opposites, etc.

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*Lack of converging power to carry this out gives the practical oculist his pathologic problems of exophoria and divergent strabismus.

*The fact is a striking example of how little pathology of the laboratory kind has to do with life, function, or the origins of diseases. It is a matter of vast significance to a man whether he is right-handed or left-handed, or of mixed type. But millions of slides by all pathologists could not tell to which class the dead man belonged.

Think also of the appalling amount of misery, mental and physical, the disease, the shame, that for untold ages has been thrust upon the left-handed by parents, social custom, etc. There is even now scarcely a poor left-handed child who is not cursed by the attempt to make him right-handed. There are about three million naturally left-handed in the United States! Every one of them, if not absolutely diseased, is made morbid, less happy, handicapped, by the peculiarity a little, by the cruelty of changing it a vast deal. Add the millions of millions that must have lived since the first finger of the dextral hand was held up in counting! In savage times the savage mother and father, and tribe, must have horribly maltreated the poor unfortunates. There is only a little proof of this in the *Keep to the Right* of our common law, in the wrong and ignominy associated with the words *sinister, gauche,* etc., and the honor born of mere contrast, of course, in *right, dextrous, dexterity,* etc.

Focus the converging lines of the argument! The 97 per cent. by all laws of inheritance and of mechanics should long ago have extinguished the relatively few left-handed anomalies. They persist, and perhaps increasingly. The mixed types are certainly increasing. The vindictive effect of persecution, shame, and cruelty, united to the number of the mutilated, would add powerfully to exclude them in the long history of human evolution. They reappear as numerously, as mysteriously, apparently as illogically as ever, and certainly in mockery of any known law of heredity. Why?

To understand the answer it should be remembered that forward movement of a four-footed animal, composed of two poorly united or co-ordinated longitudinal halves, must be by means of the governors of all movement—vision. One organ of this vision was for the one badly co-ordinated half-body, the other for the opposite half. The brain was halved, also, but a slow and poor correlating mechanism was begun and is being improved, at present much improved. Even now the right eye is united in function with the right hand, the right foot, etc., and especially with language, the crowning achievement of humanization. The centers of right-eyedness, right-handedness, right-footedness, speech and writing (with memory and intellect) must be topographically in the left cerebral hemisphere to insure speed, accuracy, and co-ordination of united sensation, thought, will, and action. In the left-handed, of course, the same law holds of the right side of the brain. In one or in the other, therefore, a little by inheritance, and more by necessity—but not divided or mixed! That is disease—and the god of evolution is a physiologist, not a pathologist! (He seems to have made some pathologists, but not intentionally; and they are pathological!)

The right cerebral mechanism, although disused for speech-function and right-hand function for 97 per cent. of all ancestors, and for a special family group, for untold generations, still retains an equal aptitude and mechanism for function with the left. The peripheral mechanism of left hand, left foot, etc., also retain their co-equal educability and proficiency. What varies, and what is the special variant cause beyond the complete control of the biologic mechanic, which induces the individual incidence of right-handedness and of left-handedness?

It is the eyeball. I have measured 20,000 or 30,000, and no one was perfect in shape. It is a poor and makeshift mechanism apart from its morphology; but, so difficult, so impossible, is the task of making it mathematically perfect in shape, i. e., to one-three-hundredth of an inch of ametropia (and that may be pathologic in resultant function) that such perfection of dimensions has been impossible. An approach to that perfection has been attained in the ages, and by means of that most powerful of all the agents, the exclusion of the unfit, the exclusion of the ocularly unfit.

When the child begins to reach out for and to seize upon objects with its hands, the question arises at once—with which hand? One is usually all that is necessary, and one must be selected. Then begins either the life-long and increasing preference, selection, and selectability of the right, or of the left—or the history and perfecting of right-handedness, or of left-handedness. The significant thing is the order in which the peripheral functions appear and develop in the child. First of all, long preceding, causing, and governing all others, especially of motion, is Vision. The lesson of embryology is illustrated in the baby's life. When the muscles of the arm and hand are ready for any movement, vision has been long ready to direct it and make it purposive. Then the correlated center for speech-phonation is located in the brain-half opposite that of the dextral eye in the right-eyed, and vice-versa in the left-eyed. The foot-and-leg correlation is latest and always most imperfect and variant.

Many tests may be made of the now well-known fact I have so long urged of the dominance of one eye in vision; of the existence, under certain circumstances, of two images of one object (not strabismic, but normal and necessary); and of the psychic ignoring of the image of the non-dominant eye. A sheet of paper vertically held before the eye, with the edge against the nose, followed by alternate closure and opening of each eye illustrates; or the pencil or finger may be held in most any position and the gaze fixed beyond it. Other devices prove that certainty of manual seizure, accuracy of mental re-presentations of spacial, topographic, and stereoscopic relations (with precision, safety, etc., of co-ordinated actions) depend upon the frequent preference of the image of one eye, and the ignoring of that of the other. The right eye and right hand must work together, the right eye usually governing the actions of the right hand; and the same of the sinistral organs.

If now the right eye is more defective, more ametropic, if its vision is poorer, more difficult, or more painful than that of the left, the left eye must be chosen to govern hand-action, and so, of course, the left hand will become habitually the more chosen, the more expert, and the more educated, for the special task, and soon the child is seen to be left-handed! Fight it all, tie the left hand behind the back, beat it, shame the child? Not so; the cause, the faulty right eye, will remain uncorrected and unthought of by all such absurdities and cruelties.

In the 97 per cent. and at the beginning of the function of *handedness,* the right eye is the better eye. Even in adults oculists have found out that, as a large rule, the right eye is more nearly perfect than the left, is less subject to disease, accident, etc., and that the "unconscious" wisdom of the organism will protect and cure it more certianly than the left (except, of course, in the case of the left-eyed). And when right-eyedness is once established, Nature will preserve it in desite of later oncoming amblyopia, ametropia, or disease, which then handicap it much more than the left. The rôle of heredity is that of passing down the more nearly perfectly formed eyes and the more nearly perfect right eyeball. The directly acting exceptional cause is the more imperfectly functioning right one at the time handedness is to become either the right or the left variety. I could adduce a hundred clinical proofs of this. And it is not to be forgotten that the babe's eyeballs are smaller, and hence more ametropic than larger eyeballs, surely more hyperopic morphologically—a fact of most suggestive importance.

A hundred questions and considerations arise: Handicap the infant's left eye in beginning left-handedness? The problems of equidominance, and of divided dominance? The ophthalmic surgeon's duty in disease and operations? The blunder often committed by opticians and oculists of bad glasses which cripple the dominant, and stimulate the non-dominant eye? The treatment of the maimed, the one-eyed, the paralytics, etc.? The treatment of those so pathetically and badly wronged by the "ambidexterity" foolish ones? The prevention of the cases of 27 per cent. of all the population who have lateral curvature of the spine, caused by ocular function and ocular malfunction? The stopping of the horrid writing posture of everybody? The arousing of the medical world to the awful importance of the eyes as causes of a hundred diseases? The arousing of the Darwinians to the rôle of bad eyes as the great cause of the exclusion of the unfit? These and many such questions are, indeed, most living, most imperative, but not to be entered upon here.

CASE OF CHOKED DISC PROBABLY DUE TO BRAIN TUMOR.

THE ADVISABILITY OF PALLIATIVE TREPHINING IN SUCH CASES.

By JEROME B. THOMAS, A.B. M.D.,

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THE patient is a male, 22 years old; he first came under my care December 11, 1906, in the clinic of Dr. W. E. Lambert, New York Eye and Ear Infirmary; he stated that two weeks previously he had been "struck blind" at the car barns, where he was waiting to take out the car of which he was conductor, but recovered the vision of his left eye about five minutes later, to such an extent that he was able to take charge of his car for about two hours longer, when he was allowed to go home; he never regained the vision in his right eye.

He had a burning pain in the eyes just after the stroke of blindness, but slept well that night, and since then has had no pain of that character. His vision is fairly clear, but frequently blurs for a moment, giving him a depressing sense of insecurity and of impending blindness.

His antecedent history was as follows: Three years ago, and again, two years ago, he had, during the night, attacks of unconsciousness epileptoid in character; one year ago he had several attacks of transient numbness of the right face, arm, body and leg, beginning in the arm and lasting a few minutes; he had had during the past few years occasional attacks of severe frontal headache, with vomiting, which he attributed to indigestion.

EXAMINATION.—*Right Eye:* Total blindness; the optic nerve-head is yellowish gray raised by swelling about 1 mm. above the surface of the retina; the central vessels are much engorged; there are several bright white splashes of retinal atrophy between the disc and the macula. This eye has probably been blind for several months, but the fact was not recognized by the patient until his other eye failed; the eye tends to diverge.

Left Eye: Vision, 20.40. The optic nerve-head is raised about 1½ mm. above the retina, and its borders are blotted out by a yellowish exudate extending into the retina; the central vessels are intensely congested, and the center of the disc is covered by a net-work of congested capillaries. The whole appearance is that of an acute process as compared with the atrophic changes in the other eye; the field of vision is about normal; both pupils are dilated and react to light, accommodation and convergence, though feebly at times; spontaneous oscillations of the pupils (hippus) made it difficult to determine the pupillary reactions, but the results were verified by several series of examinations made on different occasions.

Possible foci of infection were sought in the ears, nose, and accessory sinuses, but with negative results. An examination of the urine was negative. There were no traces of syphilis, and the patient denied having had any venereal disease.

After about three weeks' treatment with large doses of the iodide of potassium without improvement, he was admitted to the wards of the Infirmary, where I was enabled, through the courtesy of Dr. W. E. Lambert, to carry out the so-called "combined treatment," after the method of Burnham of Toronto. This consisted of daily hypodermic doses of pilocarpine, beginning with gr. 1.12, and finally reaching a daily dose of gr. 1.4. The purpose of this medication was to increase the eliminative and absorbent action of the mercury and iodides given by mouth at the same time. After three week of this treatment he was discharged from the wards. The exudate about the optic disc was more circumscribed and his central vision was a little more acute, but he still had frequent momentary lapses of vision. His field of vision was moderately contracted.

From the first, cerebral tumor was, of course, considered as a probable cause of the choked disc, but other symptoms were lacking or too slight to serve as evidence.

About February 1st his headaches became more severe, and he had occasional attacks of vertigo. His central vision was still 20.40, but was more often subject to momentary lapses, and his field of vision was becoming ominously contracted—strong evidence of progressive strangulation and atrophy of the fibers of the optic nerve. The pupils were still dilated and reacted irregularly to light.

The consensual pupillary reactions were examined carefully on several occasions and found to be positive, though feeble. During February Dr. Alexander Duane saw the patient with me several times, and I am much indebted to him for assistance in my study of the case.

About this time the patient was examined at the Neurological Clinic of the Cornell University Dispensary by Prof. Charles L. Dana, and several times by his Chief of Clinic, Dr. J. R. Hunt.

The tendon reflexes were found to be normal, and the function of the cranial nerves normal; there were no areas of anesthesia, no symptoms of acromegaly; the temperature sense was normal.

Although there were no motor or other localizing symptoms on which to base a diagnosis of cerebral tumor, it was thought justifiable, in view of such marked symptoms of intracranial pressure as progressive choked disc and persistent headache and vertigo, to advise a palliative trephining of the skull (decompressive operation) for the relief of pain, and with the hope of arresting the strangulation of the optic nerve fibers of the left eye.

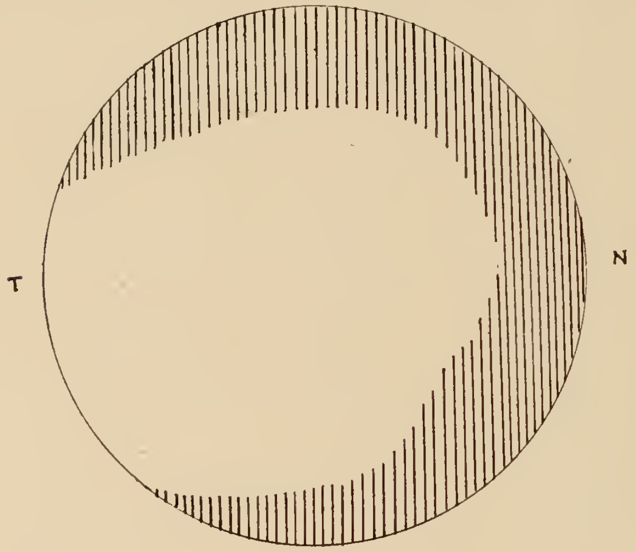

Plate I. Dec. 11, 1906. Field of vision (the white area) normal. Central vision 20-40 —.

By the third week in February the patient was suffering with very severe frontal headache and attacks of vertigo; he appeared dazed at times, like one awakening from a deep sleep; his vision had fallen to 20.100, and his field was contracted to such an extent that it might be called telescopic in quality.

Consternation among the patient's family followed the advice that a palliative trephining be performed. They also refused to allow a lumbar puncture which I proposed to try for its possible temporary relief of the pressure symptoms.

The patient disappeared, and I lost track of him until April 10th, when I examined him in Bellevue Hospital, by courtesy of Dr. Alexander Lambert, in whose wards he had been treated for several weeks. The only trace of vision remaining was a slight and doubtful perception of light when flashed into the macular region of the left eye. He had frequent severe headaches, and vomited a little every day. Both pupils reacted feebly to light, but the consensual reactions were doubtful. There was slight, if any, change in the swelling of the optic nerve-head.

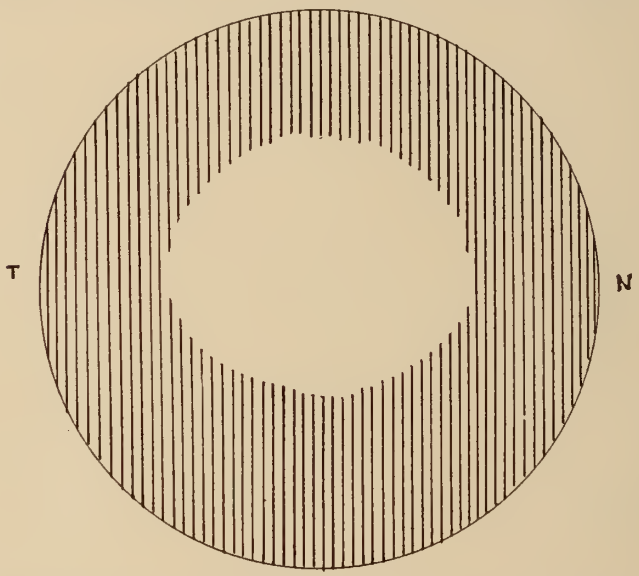

Plate 2. Jan. 19, 1907. Field of vision contracted. Central vision 20-30 —.

The patient was taking 150 grs. of potassium iodide daily for the relief of the pressure symptoms.

Though incomplete and disappointing in its outcome, this case suggests several points of interest and importance.

Although the right eye had almost certainly been blind for a long time, the fact was not noticed by the patient until forced upon him by sudden failure of vision of the left eye. This occurs not infrequently in unilateral disturbances of vision, and may be of practical importance in medico-legal cases. The persistence of the direct pupillary reaction to light in an eye that had been blind for several months, and of the consensual reaction in the seeing eye, is of interest as emphasizing the relative resistance of the centripetal fibers of the optic nerve, leading to the oculo motor nucleus, which maintained the continuity of the light reflex arc long after the other fibers of the optic nerve had ceased to functionate.

Uhthoff[6] reported the case of a child that had been totally blind for three months as a result of optic atrophy, and yet showed plain light reflexes in both eyes. He reported a similar condition in an infant six months old.

Wilbrand and Saenger[7] reported a case of tabes with bilateral optic atrophy in which sight and light reflexes were entirely lost. After several hours in the dark the pupil reaction returned, but no degree of vision. They explain these cases by assuming that the vision fibers of the optic nerve are more "vulnerable" than the pupil fibers. According to Bernheimer and others, the pupil fibers are larger than those concerned with vision, and may thus be differentiated from the latter.

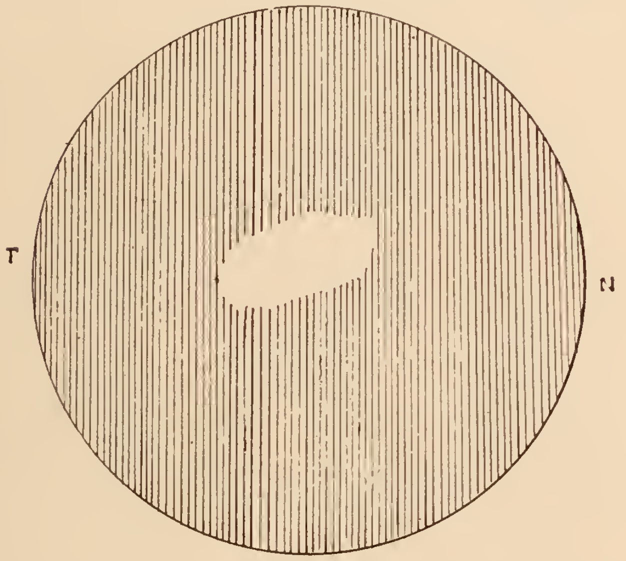

Plate 3. Feb. 12, 1907. Field of vision greatly contracted. Central vision 20-30—.

The obvious inference from these facts is that unqualified reliance upon the pupil reflexes in the diagnosis of total blindness cannot be justified.

It is a well known fact that tumor of the brain is the most frequent cause of choked disc, the latter occurring in 80 per cent. of the cases of cerebral tumor, according to C. P. Knapp, and as high as 90 per cent. according to others. That choked disc may be an early sign of increased intracranial pressure is demonstrated by my patient, in whom severe optic neuritis existed for at least four months before the outset of other distinctive symptoms.

The importance of frequent determination of the field of vision should not be overlooked in these cases as a measure of prognosis. For two months or more my patient's central vision remained almost normal, but the steadily narrowing field gave warning of the sure approach of blindness. The increasing frequency of sudden lapses of vision, like the flickering of an expiring flame, adds certainty to the unfavorable prognosis.

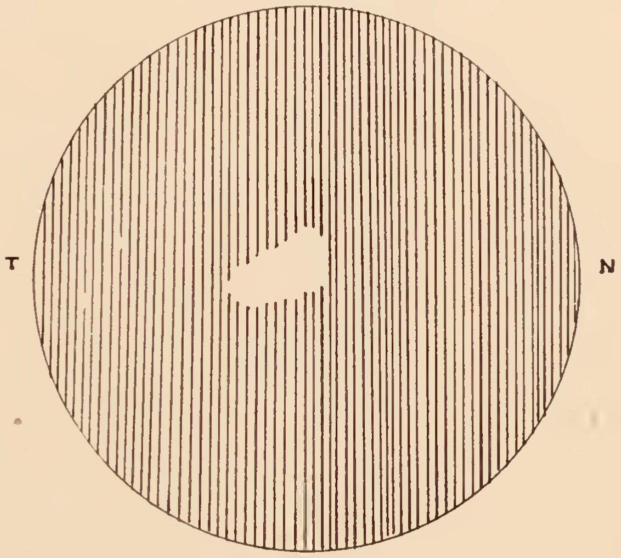

Plate 4. Feb. 22, 1907. Field of vision telescopic. Central vision 20-100.

The question of most vital and practical interest raised by this case-history is, however, that of the advisability of early trephining of the skull for relief of the choked disc and the consequent preservation of vision, or regaining of vision in cases where the optic nerve fibers are not yet atrophied. If at the same time we may hope to abolish the fearful headache and the nausea and vertigo from which these unfortunate patients suffer, we surely have strong grounds on which to base our recommendation of such a seemingly heroic measure.

CEREBRAL DECOMPRESSION.

One of the earliest pioneers in the field of brain surgery is Sir Victor Horsley,[1] and his address on Surgery, delivered last year at the Toronto meeting of the British Medical Association is an important landmark. In that address he made the following statement as to the palliative surgical treatment of choked disc: "In no case of optic neuritis (not, of course, of toxemic or anemic origin) should the process be allowed to continue after it has once been diagnosed, and if blindness results therefrom the responsibility is very heavy on any one who fails to advise such a simple procedure as opening the dura mater."

Lesie Paton,[2] in a study of thirty cases of cerebral tumor at the National Hospital, Queen's Square, in some of which the tumor was removed, in others not, states that useful vision was saved in twenty-two out of thirty cases.

In a notable contribution[3] to this subject based upon the observation of fourteen cases, Professors W. G. Spiller and C. H. Frazier, of the University of Pennsylvania, bear evidence to the beneficence of the palliative operation of decompression. Spiller advises that the operation be done "before the general symptoms become very intense, and especially before optic neuritis has developed so far that blindness is likely to result." Further he says: "The apparent unanimity of opinion as regards the effect on choked discs of opening the skull makes the necessity of this operation at an early period very evident."

Frazier, in his portion of the report, says: "There are two classes of cases in which a decompressive operation is required: one in which there is reason to believe the tumor cannot be removed in its entirety, and the other, in which the tumor cannot be localized, and yet the possible loss of vision, the intense headache and distressing vomiting almost demand the immediate adoption of some measure of relief." Again, "One of the strongest arguments in favor of the palliative operation is the opportunity to save or restore the patient's eye-sight. Without exception, the choked discs subsided in every instance, but unfortunately in at least three of our cases the patients remained totally and hopelessly blind, because the optic neuritis was of so long duration that the nerve had undergone atrophy."

The literature of the operation is carefully reviewed by Spiller[3] in his contribution to "Cerebral Decompression." As to the nature of the operation, it is maintained that the skull should be opened over the suspected area of the brain in order to enable the surgeon to convert his operation into a radical one and attempt a removal of the tumor, should one be found. If, however, the symptoms altogether fail to suggest the location of the cause of the pressure, it is desirable to trephine over a silent area of the brain and preferably, according to Frazier, over the right temporal region. Here a "section of bone equivalent to six or eight square centimeters may be removed through a longitudinal incision following the direction of the fibres of the temporal muscle." It is not necessary to open the dura mater where the operation is done merely for the decompressive effect, as the removal of bone usually relieves the pressure. Frazier states that in his fourteen cases the choked disc subsided equally in those in whom the dura was and was not incised.

The mortality of the operation when performed by a competent surgeon is a negligible quantity. There was not a fatality among the fourteen cases of Spiller and Frazier and ten of them are reported as "alive and free from pain" (including one almost complete recovery) at periods varying from two and one-half months to seven years after the operation.

Two cases reported by Horsley and one by Frazier demonstrated the brilliant if unexpected results that may follow a simple operation undertaken merely as a palliative measure. In case No. 4 of Frazier's series there was a diagnosis of tumor of the cerebellum or cerebellopontile angle. For several months he had suffered from intense headache and dizziness; he had choked discs and his vision was so poor that he could not see large objects. In order to facilitate exploration one-third to one-half of one lateral lobe of the cerebellum was removed but no tumor was found. Two and one-half years after the operation he is engaged as a laborer in the Penn. R. R. shops in Altoona, has practically normal vision, weighs 184 pounds, and is well except for occasional attacks of vertigo.

Horsley[1] in 1890 operated on a patient for cerebral glioma, but on exposing the tumor found it to be so large that he decided not to attempt to extirpate it. The wound was closed and the patient recovered. Two and one-half years later he died of another disease and at autopsy it was found that the cerebral tumor had disappeared, leaving a "cicatricial and degeneration cyst."

Another of Horsley's cases operated in 1902 was a physician "with all the symptoms of a rapidly-growing, malignant tumor of the left lateral lobe of the cerebellum," including optic neuritis. The skull and dura were opened, but no tissue was removed. "His recovery was complete, and in a few months he returned to his practice, which he has been carrying on ever since."

Prof. de Schweinitz[4] says: "That palliative trephining for the sake of saving sight is a proper operation is abundantly confirmed by my own experience, and the earlier it is performed the better will be the patient's chance of retaining or regaining his vision."

Dr. Alfred Saenger,[5] of Hamburg, says, in a brief paper published in February of this year: "In the present advanced state of surgery the palliative trephining of the skull is, according to my further experience, an operation of uncommon beneficence and almost without danger when performed by a skilled operator. I would recommend it in every inoperable brain tumor, both to lessen the pain of the patient and especially to protect him against threatening blindness."

In spite of such high authority in favor of palliative trephining for the relief of impending blindness, contributed by some of the leading neurologists, surgeons and ophthalmologists of three nations, the importance of the procedure has only begun to impress the conscience of the profession at large. Inability to localize a tumor certainly should not prevent the resort to a palliative operation in a case of choked disc with progressive failure of vision and other marked symptoms of intracranial pressure. In view of the notable results in the series of fourteen cases reported by Prof. Frazier, who would not take the slight risk of the operation and finish his days in comparative comfort, in preference to certain blindness and the probability of a prolonged and agonizing death from brain tumor?

The preservation of sight in these cases possesses an added importance because the patient may live for several years after the operation in comfort, or perhaps in rare cases may regain perfect health, and one is moved to agree with Horsley that the responsibility is heavy on any one who fails to advise such treatment in appropriate cases.

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171 Joralemon Street.

DIRECT TRANSFUSION OF BLOOD BY THE CRILE METHOD.*

By RICHARD W. WESTBROOK, M. D.

THIS case, being one of the first done in Brooklyn, is reported in order to emphasize certain points in the technique. The patient was a married woman, aged 32 years, very fat, and had suffered from gall-stone attacks, without jaundice, for two years. Five weeks before operation her last attack occurred, and was followed by very moderate jaundice, enough to produce itching and to tinge the conjunctiva at time of operation. Her urine showed a trace of albumin and some hyaline and granular casts. A large, distended gall-bladder was easily palpated. A diagnosis of gall-stone impacted in the cystic duct was made. At operation, a single stone was found occluding the cystic duct. This was milked up through the gall-bladder and removed. The writer would ordinarily remove such a gall-bladder, but on account of the urinary findings, did the shortest operation possible, merely draining the gall-bladder. For three days the patient did well, and he never saw a more comfortable patient. On the fourth day blood began to show in the bile coming through the drainage tube. Thick mucus and blood began to clog the tube and her jaundice increased. There was no occlusion of the common duct at time of operation, neither was there any induration of the head of the pancreas. On the fifth day the tube was removed and the gall-bladder packed with gauze saturated in 1.1000 adrenalin chloride solution. This did not control the oozing, and calcium chloride was given by rectum, 60 grains every six hours. The following day this was changed to 30 grains by mouth every four hours. Adrenalin was also given by mouth, with morphine to relieve pain and produce quiet. The oozing was still uncontrolled, which surprised him because of the slight amount of jaundice originally present, and the absence of pancreatic involvement. It was decided that the nephritis present was a causative factor in producing oozing, although rarely taken into account surgically. By the eighth day her pulse had risen to 150, and marked air-hunger was present. It was decided to do a direct transfusion of blood from the husband to the wife, on the theory that a sufficient amount of normal blood introduced into the patient's vessels might produce the necessary clotting and stop the oozing. The husband consented.

Transfusion was done under one-fifth of 1 per cent. cocaine solution, with morphine previously by hypodermic. Little pain to woman; moderate to man. Median vein isolated near elbow of patient and found very small. Three-quarters inch of fat on patient's arm rendered longer incision necessary. Radial artery of husband easily dissected out and tied off below, pressure being kept on it above. The little silver ring for the anastomosis was quickly constructed by Dr. H. F. McChesney, and was about one-eighth inch in diameter. This was just large enough to draw the artery through snugly. As the artery contracted down to a small cord, it was necessary to dilate the end of it thoroughly to turn back a cuff of the artery over the ring. Blood came at first only in drops, but on making tension on the vessels, so as to thin out its walls as it passed through the ring, it came in a fine stream. The small vein was passed over the cuff of artery and tied onto the ring with difficulty, because of its small size. The manipulation caused no pain to either patient. The stream was allowed on and the artery pulsated vigorously. Tension was made on the artery by drawing upon the ring, but it was difficult to determine how much blood passed through. There was no immediate perceptible difference to either patient. The anastomosis was allowed to remain one hour. The suturing of skin afterward was painful to both patients.

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*Read before the Brooklyn Surgical Society, June 10, 1907.

A marked improvement in the patient took place after her return to the ward. Air-hunger ceased, her pulse dropped to 120, and she was much improved in every way. Oozing, however, did not stop until twenty-four hours later. At the end of thirty-six hours all her symptoms suddenly increased, and she died with little warning. The prolonged effects of the anæmia on the heart muscle may have had to do with her death.

Dr. Westbrook stated that he believed the effects of the transfusion were very beneficial so far as they went. He could find no published account of Crile's technique, and could surely accomplish larger results with a second experience. He would emphasize the selection of the arm of the patient which presented the most well-marked veins, and utilize a vein near the elbow. He would use a slightly larger ring, the radial artery being one-seventh inch in diameter. No harm came to the husband from the loss of his radial artery, and this can form no objection.

He also emphasized the fact that nephritis as a cause of hemorrhage in surgical conditions was overlooked in surgical literature, although a well recognized cause of medical hemorrhages.

HEALTH OF PUBLIC SCHOOL CHILDREN.

By LUTHER HALSEY GULICK, M.D.,

Director of Physical Training in New York City Public Schools.

WE are told by the Board of Health that over 30 per cent. of all children in the public schools have a degree of eye deformity sufficiently severe to interefere with their school work and progress from grade to grade. It is reported that in a certain school 62 per cent. of the pupils, who have been there for two years or more, have eye deformities. We are told that throughout the city these eye troubles increase so consistently from year to year that it is almost possible to place a certain grade by reporting upon the percentage of eye deformity found among its members.

We are told that a very considerable percentage of the children have enlarged tonsils and adenoids, and that upon the removal of these enlarged growths, pupils who have been backward very frequently develop new life and vigor, so as to enable them to recover their places in the ranks with those of their own age.

Graduates of the high schools are often denied admission to the training schools because of defective vision or hearing, physical deformity, or some other disability, which would render them, as teachers, undesirable risks for the city to assume.

These disabilities—many of them—can be removed, and practically all of them could have been prevented. In this fact there is presented to the Board of Education a new set of problems.

With the magnificent work of the charitable organizations of New York City, we of the Department of Education are not only most heartily in sympathy, but to them we are willing to acknowledge a deep debt of gratitude for saving to the city and to us, large numbers of children—children that have been taken in the summer to the country or to the seashore, those in immediate need who have been provided for, and the like. But this work, splendid as it is, does not remove the cause of the difficulty.

The city school is, comparatively speaking, a new thing. With it new problems of lighting and seating have arisen, as well as new problems in administration. The construction of the school building involves architectural and engineering skill, and the Committee on Buildings of the Board of Education has in its employ one of the best-known American architects, whose business it is to pass upon all technical questions concerning the construction of buildings for the public school system. The size of the timbers that will support the roof of a given span, the strength of the structure, in relation to its height—these are technical questions, for the solution of which is demanded the skill of the technical expert.

So the Committee on Supplies, which must furnish everything for the schools, from text-books to coal, has at its head a competent business man—Mr. Patrick Jones. Under the direction of the Committee on Supplies, and with the help of an able force, he attends to the purchasing and distributing of the needed materials. The purchase of coal and other commodities is not a question of psychology and pedagogy; it is a question of technical business knowledge. From whom and where to buy, in what quantities, how and when to deliver, what kinds of coal to use, what system of auditing and accounting to employ—these are technical business questions, and they must be met by a technical business expert—just as the Committee on Buildings needs for its problems an expert architect.

It is my belief that the group of problems centering about the health of school children demands technical treatment of a similar nature as that required for the departments whose duties I have just sketched. If the children's eyes are becoming defective because of lack of wisdom in the choice of type, the length of line, width of margins, the spacing between lines, it is of fundamental importance that something be done to procure the proper text-books, and thus remove the cause of the eye deformity. But for this the advice of the technical expert is needed. It is not a matter of untrained common sense—any more than the question of the stress and strain in a building structure is a matter of untrained common sense. If the present modes of sitting still in the New York public schools are responsible, to any degree, for the crooked backs that we sometimes see in children, we should know it and then change the habits of sitting. This, again, is a matter for the trained orthopedic surgeon. It is not a question either of psychology or pedagogy—at least not until after the diagnosis and treatment have been decided upon.

How much home study shall children of a particular age be allowed or required to do? This also is not a question of psychology or pedagogy; it is a technical question of medicine. What lessons shall children study at home? This is a question of pedagogy and school administration; but the number of hours for study, or the time when a child may do his best work—these are biological problems. They are problems that are capable of more or less exact determination.

Such facts as these lead us to the belief that there should be co-ordinated with the other activities of the Board of Education a department composed of men who are technical experts on the various questions of health in relation to school life.

There are, I believe, 63,000 children in "part time" classes in New York City. No doubt this condition has been due, to some extent, because of large immigration and other causes of a similar nature; but our experience within the last year has satisfied us that a very great percentage of these classes exists because of difficulties which are removable, and it is evident that if these difficulties had been prevented or removed there would at present be no "part time" classes in New York City. Purely as a matter of economy, then, it would pay to take those steps which will insure that each child, as far as possible, is in condition to take advantage of the education that is provided for it so liberally and generously by this city. It is economy that the child should progress regularly in his school life, rather than remain behind year after year, blocking the lower grades of the school.

There can be no choice between health and education. Only that education is effective for use in life which is founded upon and which secures good health.

A CASE OF CAESAREAN SECTION.

By CHARLES JEWETT, M.D.

My seventeenth Cæsarean Section, the second within two months, has just left the hospital in good condition and with a living and robust child. The woman had a moderately flattened pelvis. When I first saw her, in the latter part of April, labor had begun. In her first confinement she was delivered in Russia, by version. The child was lost during the birth. Her second labor, which occurred in this city, was equally unfortunate for the child. When she entered my private hospital the abdomen was exceedingly pendulous, the child large, the head measuring through the abdominal wall 11.3 cm. in the occipito-frontal diameter and of less than the usual plasticity. She was allowed to go about two hours into the second stage in the hope that the head might engage. Notwithstanding strong expulsive pains and all efforts to correct the forward obliquity of the uterus, the head remained persistently above the brim.

Cæsarean section was performed in preference to the Gigli operation, though the latter no doubt would have afforded sufficient pelvic space. The abdominal incision extended one third its length above and two-thirds below the level of the umbilicus. The advantage of this location is that it brings the uterine incision in the upper thickened contractile segment of the uterus, avoiding the thinned and relaxed lower segment. The high incision through the fundus and upper part of the body of the uterus is more especially desirable when the operation is done in the second stage of labor. It is better in operations performed before labor, yet here it is not so essential. Since the membranes had ruptured early in labor, the child was closely invested by the uterus and the extraction was somewhat difficult. The placenta which was implanted posteriorly came away easily with the membranes intact. The uterine vessels were controlled by manual compression only. Hemorrhage was no greater than in normal labor. The uterus was sutured in the same manner as in the case reported a few weeks ago. The musculature was closed with interrupted number 2 chromated catgut sutures, three to the inch, and without including the mucous or serous coat. The latter was then brought together in a welt over the deep sutures. The abdomen was closed in the usual manner.

The recovery was uneventful.

The weight of the child was nine pounds. It was fed by the breast after the first four or five days.

LONG ISLAND MEDICAL JOURNAL

A Forum for the Discussion of all Topics involving the Medical Profession and especially that of Long Island.

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Further information on advertising page 27

NOVEMBER, 1907.

ASSOCIATED PHYSICIANS OF LONG ISLAND.

THE Twenty-ninth Regular Meeting of the Associated Physicians of Long Island was held at the Garden City Hotel, Garden City, October the nineteenth, 1907. Dr. Arthur H. Terry presided.

As it was impossible this time to provide a special train, it was feared that there would be a falling off in the attendance, but, it is gratifying to be able to state, this was not the case, for the meeting was attended quite as well as October meetings in the past, there being over eighty members present.

The only important item of the executive session was the appointment made by the president of a committee to investigate the shell fish industry of the island and to propose plans for its sanitation. The committee appointed is made up of Dr. George H. Donahue, Northport, Chairman; Dr. Elias H. Bartley, Brooklyn; Dr. Clarance C. Miles, Greenport; Dr. Frank Overton, Patchogue; Dr. William A. Baker, Islip.

Members elected: Dr. Nathan P. Thayer, Brooklyn; Dr. Walter G. Hirsemann, Brooklyn; Dr. Martin M. Kittell, Jamaica; Dr. George Isaac Miller, Brooklyn; Dr. Frederick Schroeder, Brooklyn.

The Scientific Session was presided over by Dr. Dudley D. Roberts.

The first paper was by Dr. Paul Pilcher, and was entitled *"The Use of the Cystoscope as an Aid to Diagnosis in Diseases of the Bladder and Kidneys."* Because of the unavoidable absence of Dr. Pilcher, the paper was read by his brother, Dr. James T. Pilcher. The discussion was opened by Dr. L. N. Lanehart and continued by Dr. F. C. Valentine.

The second paper was read by Dr. Calvin F. Barber and was entitled, *"A Contribution to the Tetanus Investigation."* This paper was discussed by Dr. William Browning, Dr. Frank Overton and Dr. Edwin S. Moore.

Dr. Arrowsmith gave a practical and very interesting demonstration of the Killian Bronchoscope.

The last paper was presented by Dr. John H. Barry, and the title was, *"Some General Obstetrical Observations and Experiences."* The paper was discussed by Dr. Dickinson.

The dinner was promptly served after the meeting and was a decided success in point of enjoyment and excellence. Eighty-three members attended.

For the information of Brooklyn members who did not attend it is desirable to emphasize the fact that those who did attend reached Brooklyn about half-past nine o'clock.

JAMES COLE HANCOCK,
Secretary.

CHARGE TO THE JURY IN THE VANDERBILT CASE.

THE instruction of the jury as to the law bearing upon the recent Vanderbilt case is of special interest to the medical profession. The charge was delivered by Herbert T. Ketcham, Esq., and was concurred in by the other two members of the Commission, Henry A. Fairbairn, M.D., and Hubert G. Taylor, Esq. That no exception nor dissent was expressed by either side to the pronouncement is a fair indication that it was satisfactory to both and an unbiased and lucid statement of a rather intricate question. It reads, in part, as follows:

> A sane delusion is a belief which under all the facts and circumstances surrounding the holder of the belief cannot be said to be contrary to what he may reasonably accept as evidence supporting his belief.
>
> The definition of the term "insane delusion" which will govern you is as follows: If a person persistently believes supposed facts which have no real existence, except in his perverted imagination and against all evidence and probability, and holding such belief conducts himself however logically upon the assumption of these supposed facts, he is, so far as we are concerned, under an insane delusion, and in that respect is insane. . . .
>
> * * * * * * *
>
> The mere fact that the respondent believes that the spirits of the dead in various ways communicate with and manifest their presence to man, usually through the agency of a person called a medium, does not of itself justify an inference that he is incompetent. The mere fact that he believes that he holds intercourse with departed spirits does not of itself justify an inference that he is incompetent. The truth or falsity of a creed or faith or religion is not involved in this inquiry. Whatever result you may reach, your verdict will be no declaration, either direct or indirect, express or inferential, upon the question whether spiritualism is a true creed or a false creed, or whether any system of belief to which you may conclude that the respondent has given his adherence is true or false. There will be no utterance by you in favor of the truth of spiritualism if you find that the respondent is sane. There will be no expression by you against its truth if you find him lunatic and incompetent.
>
> It is true that religious beliefs, creeds or faiths, however contrary they may be to the general belief, creed or faith, cannot be made by themselves the basis of a conclusion, that one holding such belief, creed or faith is insane. When, however it appears that in addition to a belief in spiritualism, a person has become so convinced of the reality of communications from the dead, that the control of his person and disposition of his property are governed by the direction and advice contained in those communications, and that the person under the influence of such convictions and control has made dispositions of his property or is about to make dispositions of his property, or has contracted or is about to contract marriage, or other relations, and that such dispositions or the contracting of such marriage or other relations appear unwise or unusual, according to the accepted standard, and that these assumed communications have come through the mediumship of the person who has benefited, or is to benefit by such advice, directions or dispositions of property, or by the contracting of marriage or other relations, a case is presented which calls for an investigation as to the competency of such person first mentioned, and a jury may find him incompetent to manage himself and his affairs in consequence of lunacy.
>
> The abstract belief in spiritualism does not in itself tend to show incompetency, but if you find in addition to such belief that the respondent has surrendered his will to the control of such influences, rather than to the exercise of sound judgment, it will be your duty to consider the fact of his belief in spiritualism generally or in particular appearances which he may believe to constitute manifestations from departed spirits, not as the basis of a finding that his beliefs in these respects are delusions, but as an introduction and aid to the precise inquiry whether or not he has become subject to a secondary belief not included in the general creed to which he adheres, and whether such belief, if you find it, is separable from his religious faith.
>
> It may be repeated that mere belief in a religion cannot be regarded as a delusion. But if a person holding a creed or faith deduces therefrom a personal belief which he applies to his own affairs and adopts for the regulation of his conduct, this derivative belief, however dependent in its origin upon his general religious faith, may be entirely separable therefrom and may in connection with the facts and circumstances which surround and characterize it be the subject of judicial investigation as to whether it is a delusion.
>
> If the person who has adopted this corollary to his general faith has thereby become convinced that it is just, proper, or imperative that he shall with his own person or his property or any part of it do that which is unwise, unusual, extravagant or irrational, or contrary to the accepted standards of mankind, and such belief is so tenacious that it will not yield to evidence or argument, and the person holding the belief has made or is about to make disposition under its influence, then his belief is not an article of a general system of faith or religion; it is an insane delusion of an earthly and temporal character.
>
> If you find in this case such a belief it will still be your duty to abstain from any question as to the truth or falsity of the general system of faith from which

it may be derived, but it will equally be your duty to find that the belief itself is an insane delusion.

One reason why a mere belief in religion is not to be regarded as to whether or not it is an insane delusion is that it is an abstraction—a mere mental conception, and as such is incapable of inquiry by human means as to its truth or falsity. This reason cannot apply to a belief which is influential and operative upon the life of the believer and which takes outward form in his conduct. Such belief may be measured and judged by human standards.

Hence, you should determine whether or not the respondent actually believes that it is right or necessary that he make dispositions of his property. If you find that he harbors such a belief and has made or is about to make dispositions of any part of his property under the influences of that belief, you must endeavor to ascertain whether or not the things which he has done or is about to do are rational or irrational, wise or unwise, moderate or extravagant, according to the accepted standards of mankind, or contrary to such standards.

The conduct which the belief, if you find sonable measure and test for ascertaining the nature of the belief.

If by this process you find that the belief is rational, wise, moderate, and according to the accepted standards of mankind, then it is a sane belief, it inspires and promotes only such conduct as an ordinary sane man would exhibit, and you will conclude that the respondent is sane and competent.

If by this process you find that the belief is irrational, unwise, extravagant, and contrary to the accepted standards of mankind, you will proceed to enquire whether or not the belief is incorrigible, that is incapable of being corrected by evidence or argument, whether or not it is held against all evidence and probability, and if you then find that the belief is incorrigible, and is held against all evidence and probability, you must conclude that the belief is a delusion, that the respondent is lunatic, and that he is incompetent to manage himself and his affairs in consequence of such lunacy.

AMERICAN MEDICAL MILK COMMISSION.

Among the notable meetings held at Atlantic City last June none promises to be of greater use to the general public than that of the association to be known as the "American Medical Milk Commission." Delegates came to this meeting from the Milk Commissions which have for several years been working under the county and city medical societies of many States. Even far-away California was represented, not by one only, but by two members.

Dr. H. L. Coit, who has devoted much time to the subject of the improvement of the milk supply of his own State—New Jersey—was appointed president; and Dr. Geir, of Cleveland, secretary. The first session was devoted to a report of delegates on the methods adopted by their Commissions.

At the second session the scope of the work of the Commissions was discussed; working methods; the standard of purity of milk which the Commission should adopt; inspectors and their methods; the requirements of dairymen; the proper care of cows; cleansing of cans; transportation of milk, etc., etc.

Several practical dairymen were present, who were asked to give their views on some of these subjects.

At the third session a stereopticon lecture was given upon the management of dairies, showing the latest improvements in stables, dairy utensils, the cleansing of cows before milking, and methods of cooling and preparing milk for transportation.

Several distinguished guests present were asked to speak upon subjects of interest to the members.

The association, in summing up, endorsed the method of certification of milk already adopted by the Commissions of local medical societies, and voted that such commissions may also, at their option, give a "certificate of inspection" to dealers whose general milk supply continuously comes up to a standard of purity fixed by the General Commission.

The association expressed its belief that the instruction which its inspectors are giving, month by month, to the dairymen who furnish milk for "certification," their close and constant watch over the work done on the farms, their determined effort to eliminate tuberculous cows, as well as unhealthy milkers, and unclean methods, and, withal, the education of consumers in reference to the desirability of a clean milk supply, will do much to bring about the improvement so greatly needed at the present time throughout the length and breadth of our country.

Eliza M. Mosher, M. D.,
Delegate from the Medical Society of the County of Kings.

DR. JOEL W. HYDE.

At a regular meeting of the medical staff of the Bushwick Hospital, held September 25, 1907, it was ordered that the Publication Committee be instructed to prepare appropriate resolutions following the death of Dr. Joel W. Hyde, consulting gynecologist.

Said resolutions are to be spread upon the minutes of the staff. A copy is to be forwarded to the bereaved family and also to the LONG ISLAND MEDICAL JOURNAL, and *Journal of American Medical Association,* for publication:

Whereas, Divine Providence has removed from our midst Dr. Joel W. Hyde,

Resolved, That, in our bereavement, we have lost a genial friend and a wise consultant.

Resolved, That we cherish the memory of one whose attainments and nobility of character contributed to the dignity and honor of the medical profession.

CORRESPONDENCE.

To the Editor of the LONG ISLAND MEDICAL JOURNAL.

Sir:—An evil-minded printer by substituting "which of" for "unless" in the concluding sentence of my editorial on the Medical Unity Bill in your October issue has made me seem to question the perfection of the Ten Commandments. And you, a good Methodist, let it go at that! Where was the blue pencil? No doubt there are some offenders against the Decalogue who would be willing to amend certain of the Commandments by striking out the inconvenient "not." I do not, however, belong in that class, although I fear that I sometimes "know the right and yet the *wrong* pursue." With the correction which I have indicated, it will be evident that what I meant to say was that the Decalogue was the only perfect code in existence. If I were running for the office of coroner, or even alderman, no doubt my enemies would publish the wholly damning charge that I didn't believe in the Ten Commandments and, of course, therefore, did not obey them, from which accusation, good Editor, be pleased to deliver me.

A. T. BRISTOW.

Brooklyn, N. Y., Oct. 11, 1907.

INVESTIGATION OF THE POLIOMYELITIS EPIDEMIC.

The members of the committees above mentioned are anxious to make a thorough investigation of, and to collect all the data relative to, the epidemic of poliomyelitis of 1907, in New York City and its immediate vicinity. To this end they must have the cooperation of all those who have had, or will have, an opportunity of studying this disease in hospital or private practice. Physicians willing to assist in this work will kindly inform the Secretary, Dr. Edwin G. Zabriskie, No. 37 West 54th Street, New York City, who will send history-forms so as to secure uniform records. Physicians who cannot collaborate with the committee will confer a favor by reporting to the Secretary, the number of cases of poliomyelitis they have treated during the past six months.

The joint committee wishes to state most emphatically that due credit will be given to everyone who contributes to this collective investigation, and that the publication of the committee's report will in no wise interfere with any article or articles to be published on this subject. Moreover, the committee's report will surely not be printed earlier than a year from date, so that medical men will have ample time to publish their articles long before the committee will have its report ready.

Respectfully,

THE COMMITTEE OF THE NEUROLOGIAL SOCIETY.

THE COMMITTEE OF THE SECTION ON PEDIATRICS OF THE N. Y. ACADEMY OF MEDICINE.

October, 1907.

NEWS ITEMS.

Eastern Long Island Medical Association has opened its new Hospital at Greenport, Long Island. The Hospital occupies a pleasant site on the outskirts of the town, surrounded by trees and lawns, and is now ready for the reception of patients.

State Medical Board of Examiners—The New York State Board of Regents has appointed the following State Board of Medical Examiners, as provided for by the law recently passed by the Legislature: Dr. Wm. W. Potter, Buffalo; Dr. Wm. S. Ely, Rochester; Dr. Eugene Beach, Gloversville; Dr. Floyd M. Crandall, New York City (*of the regular school*); Dr. Frank W. Adriance, Elmira; Dr. Floyd S. Farnsworth, Plattsburg; Dr. W. S. Searle, Brooklyn (*of the homœopathic school*); Dr. Lee H. Smith, Buffalo (*of the eclectic school*); Dr. Ralph H. Winchester, Rochester (*of the osteopathic school*).

At a meeting held on June 24, examination subjects were assigned as follows: Anatomy, W. S. Ely; Hygiene Sanitation, Eugene Beach; Physiology, R. H. Williams (?); Chemistry, F. S. Farnsworth; Surgery, F. M. Crandall; Obstetrics and Gynecology, W. W. Potter; Pathology, L. H. Smith; Bacteriology, F. W. Adriance; Diagnosis, W. S. Searle.

Swedish Hospital—At a meeting of the Board of Directors of the Hospital on October 4, Dr. W. S. Chapman was elected to the office of Surgeon to the Hospital.

Dr. Benjamin Ayers announces that his office will be at 1151 Dean Street, and that he will take up his residence at "The Chatelaine," 1111 Dean Street, Brooklyn, after October 15.

Dr. Cox's Cottage Burned—Dr. Charles N. Cox, of 257 Jefferson Avenue, has for a number of years been spending his summers at Lake Hopatcong, N. J. During the past year he has been making extensive additions and improvements to his place, and early in October, while spending a few days there, he was awakened early one morning to find his cottage in flames; the family were barely able to escape with their lives, and were unable to save any of their effects.

Dr. Darlington's Lecture—The first of a series of Public Lectures on Medical Topics of General Interest was given by Dr. Darlington, Commissioner of Health for the City of New York, at the Kings' County Medical Society Building, his subject being "Typhoid Fever and Other Infectious Diseases." He reports that so far this year there have been fifteen hundred cases of typhoid fever in Manhattan, and six hundred cases in Brooklyn. He reported a decrease of fifty per cent. in the number of deaths from tuberculosis within the last twenty-five years. Dr. Darlington announced at the meeting that the corner-stone for the new Board of Health building would probably be laid in December, and that it would be the finest building of its kind in the world. After the lecture a reception was held at the residence of the President of the Kings' County Medical Society, Dr. Glentworth R. Butler.

Meeting of the Clinical Society of The Jewish Hospital—At a meeting held October 4, the following programme was presented to the members of the Society:

1. Cerebro-Spinal Meningitis; report of two cases, William Lintz, M.D.
2. Tumor of Mediastinum, J. Ronsheim, M.D.
3. Resection of Intestine, William Linder, M.D.
4. Sarcoma of Groin, M. Lederer, M.D.
5. Osteomyelitis, William Duffield, M.D.
6. Pyelitis Complicating Pregnancy, O. P. Humpstone, M.D.
7. General Sarcomatosis, History and Specimens, S. R. Blatteis, M.D.

Dr. Truslow announces his retirement from general practice to devote himself to the practice and surgery of Orthopedics, including Gymnastic Therapeutics. His office hours are from 9 to 11 A. M. on Monday, Wednesday, Thursday and Saturday; from 3 to 5 P. M. Tuesday and Friday. Telephone call, 2644 Main.

New Immigration Law—The new law which has recently gone into effect adds to the list of those to be excluded, imbeciles, feeble-minded persons, tuberculosis aliens and those physically unable to earn a living.

A Public School for Deaf Mutes—A school for this purpose large enough to accommodate two hundred children has been established by the Board of Education. Lip reading and oral speech will be taught exclusively. It is probable that the classes will be limited to ten children each, and industrial work will find a prominent place in the course of instruction.

Dr. A. G. Horstman has opened an office at 1241 Hancock Street, near Hamburg Avenue; his telephone number is 3086 Bushwick. Dr. Horstman was originally an interne of the German Hospital, but resigned from that institution on account of an infringement of his rights as an interne; later, he became one of the first internes of the Jewish Hospital and has recently finished his course there.

Dr. M. Clifford Pardee announces a change of residence; on and after October 23 he may be consulted at his new office, 161 Macon Street. Office hours from 8 to 10 A. M. and from 6 to 7 P. M. Telephone number, 4333 Bedford.

Fall Meeting of the Associated Physicians of Long Island—By mistake, the editor of the LONG ISLAND MEDICAL JOURNAL was informed, first, that the meeting would be held at Shoreham, L. I., and, later, at Mineola, L. I. Those in charge of the programme did not notify the editor that the meeting-place finally settled upon was Garden City, L. I., so the meeting was supposed to be at Mineola and was so given to the readers of the JOURNAL. The meeting, which took place at Garden City Hotel, was an unusually interesting session, and over eighty members were present from all parts of Long Island; papers were read by Drs. Paul Pilcher, Barber and Arrowsmith, of Brooklyn, and by Dr. John Berry, of Long Island City. The subject of Shell Fish Infection was discussed in executive session, a committee being appointed to investigate the shell fish supply and the sources of contamination. The dinner served at the hotel after the meeting was all that could be desired.

Third Course of Harvey Society Lectures—The following programme has been announced:

October 26—Prof. E. O. Jordan, University of Chicago; "The Problems of Sanitation."

November 16—Prof. James Ewing, Cornell University; "Etiology of Tumors."

November 30—Prof. D. L. Edsall, University of Pennsylvania; "The Bearing of Metabolism Studies on Clinical Medicine."

January 11—Prof. Ernest H. Starling, University of London; "The Chemical Control of the Body."

January 25—Prof. George W. Crile, Western Reserve University; "Shock."

February 8—Prof. Joseph Jastrow, University of Wisconsin; "Subconsciousness."

February 22—Prof. Otto Folin; "Problems of Chemistry in Hospital Practice."

March 7—Prof. Ross G. Harrison, Yale University; "Embryonic Transplantation and the Development of the Nervous System."

April 11—Prof. E. A. Schafer; University of Edinburgh; "Artificial Respiration in Man."

New York Academy of Medicine—At the meeting Thursday, October 17, 1907, the Wesley M. Carpenter lecture was given by Dr. Edward A. Ayres; his topic was "The Mosquito as a Sanitary Problem." The meeting was well attended, as these meetings always are, and the paper of Dr. Ayres was much appreciated. In the section on Obstetrics and Gynecology, at the meeting held October 24, the two principal papers of the meeting were discussed by Drs. Jewett and Dickinson, of Brooklyn.

Medical Society of the County of Kings—At its stated meeting, Tuesday, October 15, the following papers were presented:

1. The Control of Social Diseases; by Nathaniel P. Rathbun.
2. The Dietetic Treatment of Nephritis; by Leon Louria.
3. The Value of Sphygmograms and Blood Pressure Estimations in Diagnosis; by Alfred Stengel, M.D., of Philadelphia.

The following men have completed membership in the Society:

Philip Hanson Hiss, Jr., 200 Columbia Heights, Brooklyn.

Percy Houghton, 220 Brooklyn Avenue, Brooklyn.

Melchiore Lombardo, 204 Middleton Street, Brooklyn (by transfer from the Medical Society of the County of New York).

Changes of address are as follows:

Benamin Ayres, 1151 Dean Street, Brooklyn.

Samuel K. Frost, 254 Garfield Place, Brooklyn.

William Sidney Smith, "Longwood," Yaphank, Suffolk County, N. Y.

Governor Hughes' Veto of the Optometry Bill — The following memorandum was handed in by Governor Hughes with his veto of the bill:

It is the intent of this bill that the board of examiners in optometry, to be appointed by the Board of Regents, shall be selected from those nominated by the Optical Society. It is also provided that the prescribed course of professional study in schools of optometry shall be had in such schools as maintain a standard satisfactory to the board of examiners. These provisions remove from the jurisdiction of the Board of Regents matters which it is important should be placed in their control. If the practice of optometry is to have the recognition and regulation contemplated by this bill the appointment of examiners should not be limited to those nominated by a particular society, and the determination of the standards of professional schools should be unequivocally left to the proper state authority. This is the policy established by the law enacted this year regulating the practice of medicine, and in my judgment it is unwise in legislation along similar lines to adopt a different principle.

(Signed) CHARLES E. HUGHES.

Address at Brussels by Dr. H. L. Coit—As President of the American Association of the Medical Milk Commission, the address of Dr. Coit at the International Milk Congress, held at Brussels, Belgium, is of interest. His conclusions concerning the pasteurization of milk are as follows:

"It has seemed to those charged with the responsibility of public health, including most of the physicians and sanitarians, and to those engaged in the administration of agricultural affairs in the United States, that the natural and logical method is to begin at the source of the milk supply.

"First—Care should be taken to prevent the sale of milk anywhere in country or city from cattle having tuberculosis or other disease.

"Second—Care should be taken to prevent persons having infectious or contagious diseases from being employed or associated with those engaged in the handling of milk.

"Third—Care should be taken to secure cleanliness in the persons and premises from which the milk is received. Dairymen should be made to realize the importance of neatness of detail before and after clean milk is put in clean containers.

"Fourth—In order to maintain its purity, milk should be promptly cooled to a temperature of ten degrees C. (fifty degrees F.) within a few minutes after it is drawn, and such temperature maintained without change during its transportation, while in the shops and until it is delivered to the consumer.

"Fifth—Care should be taken to insure sanitary conditions in all places where milk is sold or handled, especially by dipping it from cans.

LIMITS OF PASTEURIZATION.

"To employ pasteurization as anything more than a temporary expedient would be undesirable.

"Through the liberality of Mr. Nathan Straus, his work has been extended to many cities, and his enterprise and philanthropy deserves great commendation and praise. His New York 'Goutte de Lait' feeds sixteen hundred infants throughout the year and some additional ones in summer. No other feeds so large a number."

In closing Dr. Coit said: "The protection of the general market supply of milk can best be accomplished by proper State and federal legislation looking to the elimination and eradication of tuberculosis and other serious diseases of meat cattle and the exclusion of persons having infectious or contagious diseases from any connection with the production or handling of milk."

At the close of the session, the Congress advised against the use of raw milk, substituting for it milk that has been brought to the boiling point, pasteurized, or sterilized.

Infantile Spinal Paralysis — Although there is not so much said in the papers concerning the ravages of this disease, it is still epidemic, more especially among the poorer classes. A number of the prominent pediatricians and neurologists of the city have been studying the cases very carefully. In a recent paper read by Dr. William Browning, he has called attention to the sensory manifestations and to the muscular pains which are present, which enables us, in a degree, to prognosticate the extent of the disease. It is his opinion, further, that the improvement, after the abatement of the disease, continues for about five years, after which period nothing further can be promised. Early treatment in the form of blisters applied along the spine over the affected area have been proved to very materially benefit the patient, and shorten the course of the disease. As yet the effect of electrical stimulation has not been definitely estimated. The present epidemic resembles somewhat the one which was seen in Brooklyn seventeen years ago.

TRANSACTIONS
OF THE
BROOKLYN GYNECOLOGICAL SOCIETY

A. A. Hussey, M.D., Editor.

Stated Meeting, May 3, 1907.

The Vice-President, F. J. Shoop, M.D., in the Chair.

TUBO-OVARIAN ABSCESS

Dr. John O. Polak, in presenting this specimen, said that it instanced the difficulty presented in making a differential diagnosis in appendicitis and right adnexa disease. This patient had been treated for appendicitis and cured by a very excellent practitioner, but she still continued to have a pain in her side, and fell into the hands of another man who referred her to the Deaconesses' Hospital. She had what had appeared to be an old appendiceal abscess in the right iliac fossa. From below, the mass appeared to extend up from the uterus, but because of the rigidity of her abdominal walls it was not until she was under an anesthetic that it was possible by vaginal examination to say that it was connected with the uterus. The patient had a temperature of 102 degrees. There was very little distention. He made an incision over the right rectus muscle, and exposed what looked at first to be an abscess covered over with omentum. On freeing the omentum he came down on a right tubo-ovarian abscess, and following it down he had to do a supra-cervical hysterectomy to enucleate it. This woman had been married within four months, and the question came up as to the etiology of the disease. The adhesions were very extensive and gave almost the appearance of malignancy. Dr. Blatteis, who looked over the specimen, found the giant cells of tuberculosis, and rendered the opinion it was tubercular pus tubes with tubercular peritonitis. The appendix was fastened to the posterior wall of the pelvis, running down, over and fixed to the iliac vessels as they course along the pelvic brim; he passed over the appendix several times during the operation and missed it; it was finally located by finding the iliac vessels, and coming up from them he was able to locate the meso-colon which led to the appendix glued down to the posterior pelvic wall. He drained this case and the patient made a very satisfactory recovery, although she still has an abdominal fistula.

FATAL HEMORRHAGE FROM VAGINA

Dr. S. J. McNamara related the case of a woman 29 years old, admitted to the Kings County Hospital Maternity, January 2d, in her fourth pregnancy. The labor was normal, position L. O. A., and the child weighed 5½ pounds. The patient left the hospital in ten days apparently in normal condition. No vaginal examination was made before the patient left.

Six weeks afterward, the ambulance was called for this patient, who was found in bed comatose, pulseless and pale. There were evidences of blood on the floor, on the bed, and her clothing was saturated. Her friends said she had been well up to the present afternoon, when she was seized with a hemorrhage two hours before. She was brought to the hospital and regained consciousness, but death occurred six hours after admission. There was no bleeding after patient was first seen. The vaginal examination showed a hard, firm cervix, and the uterus was not enlarged.

The autopsy showed a uterus in a good state of involution, devoid of any blood clots and empty. A rent in the anterior vaginal wall was found. The only cause of death that could possibly be determined was a hemorrhage from the vagina, and taking place six weeks after labor was unusual. The cause of death, the speaker said, is not satisfactory, but still there was no other cause to assign for it. Was the rent a post-partum condition, or was it due to the other trauma? I am unable to decide.

Dr. William Maddren said that he believed the woman died of hemorrhage. He stated that he once tried to dilate a vagina in a woman 50 years old, and he lacerated the anterior wall and had a hemorrhage that caused him lots of trouble. He worked over it until he got tired and could not arrest it permanently. Finally he sent for the elder Dr. Barber, and together they arrested the hemorrhage and sewed the tear up. The woman nearly died from loss of blood. He thought the dilatation was with a small speculum. She had married a second time, and her husband could not have connection. The rent was only a small one. The laceration was pretty well up in the vagina anteriorly and longitudinally.

TRAUMATIC DISPLACEMENT OF THE NON-GRAVID UTERUS

A paper with the above title was read by Carroll Chase, M.D.

Discussion.

Dr. H. C. Riggs said that he did not come to discuss this matter as a gynecologist. The subject interested him chiefly because of the medico-legal question which arose in connection with it. Speaking merely as a general practitioner, and having given the matter some study because of legal necessities, he would say, in his judgment, that he did not believe that a healthy uterus in a healthy patient can be displaced permanently by the ordinary accidents, which we class under the term traumatism. He had never seen himself, nor ever had an opportunity of examining a case where it seemed to him that the organs, if displaced by traumatism, were in a previously normal position, or if in a normal position, where the ligaments and the structures connected with the uterus were not to some extent diseased. He further believed that the condition of muscular effort on the part of the patient is a much more common, if not the only cause, of uterine displacement connected with traumatism, in those cases where there is pelvic disease, or general systemic disease, on the part of the patient, weakening the ligamentous structures, or imposing too great weight upon them, or binding down the uterus by inflammatory exudates. He believed the paralellism between the traumatism in such cases and the traumatism in cases of hernia is almost complete. He did not believe that cases of hernia, even those cases which are said to be traumatic, are produced by the actual injury received. It was his opinion that, if they occur, they are produced by a muscular effort of the patient at the time when the injury is received. The speaker thought there is no question but that these cases may occur where the organs are diseased, or where the support of the organs is imperfect. Dr. Chase's case, he said, appeared to point very strongly to traumatism. Of course, the position in which he found the uterus and the prompt relief of the symptoms by replacement argued very much for its being a very recent condition, although, of course, these organs might have been displaced to some extent before this accident occurred.

There was one very important conclusion which he would draw from this case, and that is, if cases do come into litigation, where the history is of an acute displacement, that the doctor's case here shows that a continued displacement (in the attempt to recover damages for it) is distinctly the fault of the patient and of the attending physician, because the displacement, as the doctor has shown, disappears almost immediately under treatment; and the results of it seem to show an absolute absence of symptoms upon the return of the tissues to normal, on account of the resiliency of the tissues involved. The muscular element in the so-called uterine ligaments, it seemed to him, is a very important point. The ligaments have a good deal of muscle fibre in them, and that gives them a resiliency and a capacity of stretching, which is very much in excess of true ligamentous structures. These are not true ligaments. We are dealing with muscle and peritoneal folds and not with rigid ligaments such as we have in the neighborhood of the joints.

Dr. **Charles Jewett** thought that, theoretically, a healthy uterus in a perfectly normal pelvis cannot be displaced permanently by falls or blows short of crushing violence. The question, however, he said, can be settled only by definite clinical proof. No such proof satisfactory to him had been adduced that displacements under the conditions mentioned are possible. In all the medico-legal cases he had seen there had been plenty of pathology in the pelvis which evidently antedated the accident and which either included the alleged results of the accident or paved the way for them. Ordinarily, displacements of the uterus are developed gradually and are possible only when the ligaments and other supports are relaxed.

There are certain principles of physics that would seem to apply. The uterus rests in the pelvis very much as though suspended in a fluid medium. If the law of Pascal holds good here, variations of intra-abdominal pressure can have no tendency to displace the uterus so long as the pelvic structures are intact. The uterus can be thrown backward or downward by contraction of the abdominal muscles and the thoracic diaphragm only when the pelvic diaphragm gives way in some degree.

Direct blows upon the abdomen, he thinks, if they reach the uterus at all, which must be rare, cannot permanently displace the organ, if its ligaments and other supports act with their normal resiliency.

Dr. **William Maddren** said that, of course, Dr. Chase spoke of predisposing causes. If a person, he said, had a fibroid in the fundus of the uterus that would be a predisposing cause. He had rather leaned to the belief that it was possible to displace a uterus under certain conditions; for instance, suppose a young woman, healthy so far as known, while skating has a violent fall upon her back. He would like to ask if it were not possible that that uterus may be displaced posteriorly. He had seen such a case, but, of course, it was impossible to say what the conditions were before the accident. He had also seen such a case from a patient falling down stairs. If falling down stairs will produce a movable kidney, why may it not displace a uterus? He had known it to displace a kidney. There, of course, the speaker said it might be stated that the condition pre-existed. That, he could not controvert.

Under some conditions where there is a fibroid in the upper part of the uterus, or where there is a uterus with a rather long supra-vaginal neck, he thought it might be very easy to displace it. Whether retroversion can occur pure and simple in a healthy case from traumatism, he would say that he had seen such a case from a fall which a lady sustained while skating. At all events the uterus was displaced, but under an anesthetic it was promptly replaced, with just such a history as Dr. Chase had given.

Dr. S. J. McNamara thought the fact Dr. Jewett stated, that the normal uterus is not capable of being displaced, was undoubtedly true, but he said the condition of a normal uterus in a normal pelvis is the exception rather than the rule. It is possible and reasonable to suppose that a woman subject to a sudden, violent jar may have her uterus so far displaced that the intestines may be placed on the anterior rather than on the posterior surface of the uterus, and by that means help to hold it there in a retroverted or retroflexed position. At the same time the wide range of the position of the uterus is so much it may be impossible to state it. He believed that the question is one that is difficult to prove and almost impossible to realize. At the same time he was willing to admit the possibility of such a thing happening.

Dr. George McNaughton thought the case related by Dr. Chase positively proved that traumatic displacement of uterus may occur. The uterus had been normal, and it seemed to him that this case settled the question. He saw a case of descent of the uterus, which he related in this society a few weeks ago. A young girl fell down stairs, and he found her with the cervix protruding through the vulva. She was a girl of perhaps lax muscles, but no more lax than the muscles of many girls at her age, and that satisfied him that a displacement of a hitherto normal uterus may occur. He had no opportunity to examine her before the accident, and he has never examined her since the replacement of the uterus. So far as he knew she had no trouble afterward. She has had two children and he presumed her uterus was in a normal condition.

The speaker said that he had seen posterior displacements that he supposed were due to traumatism. A man cannot tell positively, he said, unless he has the opportunity of examining these cases before the traumatism occurs. He was not aware, however, that any one has made investigations from the opposite point of view. We can only consider normal tissue as a standard. It may be stronger or weaker, but there is a condition of health that we recognize when a woman does not suffer and everything is progressing according to the ordinary laws of nature. Such an individual we regard as normal.

Dr. L. Grant Baldwin said that he was afraid he was in the minority class that the writer spoke of. Personally he believed that cases of retroversion are always chronic, that is to say, that retroversion is always of gradual development. A retroversion that maintains, he thought to be always of slow development.

The analogy drawn between a displacement of the uterus and a hernia, he believed, is all wrong and unfair. The hernia goes out through an opening and is held there. In the case of a displacement of the uterus, a 2½ or 3-inch organ goes down in a 5-inch cavity, and there is nothing in the world to hold it there.

He had seen a good many cases that gave a history of injury followed by backache, etc., cases where he would suppose there was a case of retroversion due to injury. The only cases that he had ever seen of that kind had been medico-legal cases, and he had seen a good many.

In making a pelvic examination, the speaker said, we often have retroverted a uterus and have felt it fall back in place, and have not been able to keep it displaced. He did not believe it possible in an injury short of a crushing injury to retrovert a normal uterus and keep it there. It seemed to him that it is theoretically and mechanically impossible by one sudden, severe stretching of these ligaments to keep the uterus retroverted. He believed that if the uterus were so displaced it would be bound to fall back again.

Dr. Chase's case, said Dr. Baldwin, is certainly convincing, except in that case the doctor said the uterus was under size. Now he failed to see how a uterus undersized or of normal size can be held in the hollow of the sacrum, being drawn back and held without adhesions. He did not see with an empty rectum and bladder how that is possible, and he had never seen any case that had so occurred.

The causes assigned for displacement of the uterus in accident cases are preposterous. Recently in a celbrated accident case, where an ice wagon ran through the sides of a trolley car, one lady claimed she got a retroversion from falling down between the seats, and the competency of this cause for displacement was testified to by reputable medical men. He did not see how such things are possible.

Dr. H. C. Keenan thought the discussion had largely resolved itself into predisposing causes. Some of the speakers held that in a positively normal uterus displacement could not occur and remain permanent, while others held just the opposite. As Dr. McNaughton said, the range of health is very wide. We may consider a woman whose uterus is up in good position and suffers no inconvenience whatever to be a perfectly normal woman, and still these ligaments may not have a sufficient tone, if the uterus is thrown back with a violent shock, to regain the tone. Dr. Chase had shown in a very recent case that the uterus will jump back into position if released. Our own experience in pulling down the uterus for examination, he said, shows it will go back into position. Just where the uterus was caught in this case is a question. Possibly in a small uterus it may be in the utero-sacral ligaments. However, the speaker said, we do get acute cases which give a perfect history of injury, and following that injury we find a displacement. He had a case a short time ago of a young woman who fell down three or four steps. She had a period beforehand. Immediately after the injury she started to menstruate, although it was in the middle of a period. For over two years she complained of backache and pain in menstruation. When she came under his care she had a retroverted uterus, which would not remain in position, so that an operation was necessary in order to get it in proper position. Here was a case that followed in a young woman immediately after an injury. The history dated from that point. We must assume, the speaker said, that that young woman had at least fairly normal ligaments at that time. She was a young, unmarried woman. Can we say that these ligaments were diseased, he inquired, or can we say that simply she approached the state of disease in having the ligaments weaker than they should be? He thought that was the whole question.

Dr. John C. MacEvitt said that the cases related by Dr. Chase confirmed in a manner cases that had been reported throughout the medical journals. He did not believe that the question was a mooted one until the present discussion.

He could recall a case that came under his observation in the practice of a man with whom he was associated, in which a country girl, 18 years of age, in perfect health and robust, made a sudden spring to grasp the branch of a tree, and after landing on the ground she screamed with sudden pain, was carried into the house in a fainting condition, and his associate, upon examination, found a prolapse of the uterus. The evidence would go to show that that young woman was healthy previous to that accident. We have to consider, the speaker said, if we find as a result of a traumatism a descended uterus in any woman supposedly healthy, without giving any evidence of disease, that she was healthy. We have no right to consider otherwise.

When one states the absolute impossibility of such an accident occurring, it is rather a strong assertion. Can we not consider, he inquired, that there is an element in which the cerebro-spinal system plays an important part in these symptoms? In a severe traumatism the first effect is upon the cerebro-spinal system, and when that condition exists there is a relaxation of the muscles, and with this relaxation of the muscles, this displacement of the uterus is absolutely possible and probable.

Dr. F. J. Shoop said there are patients who have apparently no ill health before the accident. The accident occurs, the examiner finds the uterus out of position, and the patient suffering acute pain; pressure on the displaced uterus causes it to go back with relief of pain. He agreed with the previous speaker that the shock of the accident has probably paralyzed the tissues temporarily, and that they have no resiliency. He did not believe that the analogy between this condition and pulling down the uterus in an operation was tenable, because in the latter case there had been no injury and the tissues were resilient.

The speaker stated that he had had two cases of this class. One was a colored woman who was washing at a movable tub. She picked up the tub to empty it, and had a feeling of something giving way. He saw her three hours afterward, and in that case the fundus of the uterus was jammed down behind the symphysis pubis. It hurt her considerably when he pressed on it. It slipped right back into place, and the patient experienced immediate relief from pain.

The second case was in a school teacher who had gone into the country, and in climbing over a stile, jumped from the top step to the ground. She suffered considerable pain and had to go to bed with it. In a few days she came back to the city still suffering somewhat from the pain. On examination he found the uterus retroverted. Whether it was there before or not, he could not say, but reposition and a pessary gave permanent relief.

Dr. Charles Jewett said that Dr. McNamara asks if the uterus can not be displaced backward or downward by its own momentum in case of a fall. The parous uterus, he said, weighs ordinarily about 1½ ounce. Momentum is the product of weight by velocity. Now the velocity is not very great in an ordinary fall. The momentum could be little more than 1½ ounce. We know that it takes much more than that amount of force to pull the uterus down to the vulva with a volsellum, and it takes more than that in normal conditions to push the fundus over backward in a bimanual examination. He, therefore, did not think that momentum could often be an important factor in displacements.

As to Dr. MacEvitt's point, if atony is developed in the pelvic floor, the midriff and abdominal muscles would suffer in the same way, and the balance would still be maintained.

Dr. L. G. Baldwin said he desired to add one word further. In the history of these two cases the symptoms were immediate and pronounced, and relief was also immediate and the condition did not recur. In most of the medico-legal cases that he had seen, where posterior displacement was alleged, it was claimed that the displacement had been permanent, and in many instances it had been of chronic development, and the patient was not examined for ten days to six weeks after the injury. He thought this was a good point in Dr. Chase's cases, that the symptoms were severe and immediate, and the relief was immediate and permanent by the uterus being replaced.

Dr. C. Chase agreed with Dr. Riggs that the two causes—muscular effort and the jar or shock from a fall—frequently act together, because when the woman falls she contracts her abdominal muscles. How much of each caused a certain displacement cannot be told. He agreed with Dr. Baldwin that the slow chronic cases are not due to injury. The clinical picture is entirely different. Here the case is essentially an acute affair, where relief may be prompt and sure.

It is these sudden violent cases with which the paper deals.

As to where the uterus is caught in retroversion and prolapse he did not know with certainty. He judged behind the symphysis, whether the uterus is small or large. Whether caught between the ligament or not he did not know.

About nine out of ten text-books on the subject give violence as a cause of displacement. How much the consensus of opinion amounts to is a question. The fact remained regarding this particular case, that twenty-four hours before the accident this uterus was in an approximately normal position and of normal size, and the ligaments and supports were apparently normal. After the injury the uterus was retroverted and caught, and on release snapped back into normal position.

POST-PUERPERAL INGUINAL ABSCESS.

Dr. Walter B. Chase reported the case of a woman, age 31, multipara, whom he was called to see, May 28th, in Rockland County. She had had a miscarriage six weeks previously. She had a daily range of temperature from 100 degrees to 103½ degrees, with corresponding pulse, without chills, being weak and anemic. She had been curetted shortly after the miscarriage, but there was no evidence of infection from that source. Her principal complaint was pain about the left hip, the anterior portion of the thigh, so that movement of the left leg produced insufferable pain, with some tenderness above Poupart's ligament extending up past the anterior superior spine. There was no vaginal discharge.

Bimanual palpation revealed a little tumefaction at the upper portion of Poupart's ligament extending upwards, but without fluctuation. There was no evidence of peritonitis. The use of Unguentum Credé and anti-streptococcus serum were without apparent influence, and quinine was used without avail.

The speaker said he expressed the belief to the physician in attendance that pus was somewhere present, and that it was well walled off. On June 3d he saw her again. The fever ran to 105 degrees, pulse 140, and all the symptoms, including pain, were much worse, but there had been no chills. An area of hardness could be felt along Poupart's ligament, about 1½ inches, which extended up and past the anterior superior spine. The patient was too obese to map it out with much distinctness by palpation or percussion. There was slight edema over this area, but by careful bimanual palpation, no fluctuation was discoverable, and as far as could be determined with the finger in the vagina, the narrow mass was uniformly hard and unyielding.

He made an incision from the upper third of Poupart's ligament nearly to the anterior superior spinous process, keeping as close as possible to the inner surface of the ilium. By blunt dissection through the external oblique he was able to insinuate his finger through the muscular structures of the internal oblique and transversalis muscles, keeping behind the peritoneum, when his finger entered a large abscess cavity extending towards the liver, through which there was a discharge of about 24 ounces of yellow pus, and by which easy drainage was established.

Dr. Chase said he reported the case as an example of the most conservative plan of dealing with such cases. It was utterly impossible to reach it through the vagina, and the task of an incision directly over the mass, with the uncertainty whether the parietal peritoneum was adherent thereto, render this method the ideal one, whereby the pus could be evacuated without risk of infecting the peritoneal cavity.

Note—On July 17th the further history showed a very profuse discharge for five weeks, with chills, and temperature at one time reaching 106½, attended with great prostration. Under stimulant tonics and forced feeding, her temperature was within less than 1 degree of normal, a slight serous discharge from the vaginal opening remained, and convalescence was established.

Physiological and Clinical Chemistry. By Elias H. Bartley, M.D., Ph.G., Professor of Chemistry, Toxicology and Pediatrics in Long Island College Hospital. Third edition, revised and enlarged, with 51 illustrations. Philadelphia: P. Blakiston's Sons & Co. 1907.

It is very gratifying to the friends of Dr. Bartley to see the appearance of the third edition of his Manual of Chemistry. The author has adapted his medical teaching to the training of young students in the fundamental principles and their application to the science of medicine, especially to the diagnosis and treatment of diseased conditions; this is what is meant by the term "Clinical Chemistry." Dr. Bartley is well able to prepare such a volume, which is based upon his quarter of a century of teaching in the Long Island College Hospital.

First, Exercises in Experimental Physiological Chemistry are taken up, and the appearance and reaction of the various carbo-hydrates are demonstrated. The clinical examination of the blood receives careful attention. A good deal of space is given to the chemistry of the urine, gastric juice and the feces. There is also an important dissertation upon milk. The book is essentially a guide to the student, and may be used by the teacher in giving a systematic course in clinical chemistry.

Heart Disease and Blood Pressure. By Louis F. Bishop, A.M., M.D. Clinical Professor of Heart and Circulatory Diseases, Fordham University School of Medicine, New York City. Second edition. Price, $1 postpaid. New York: E. B. Treat & Co. 1907.

This book is a practical consideration of theory and treatment. Four years ago the first edition was published, but since that time much work has been done in this department of medicine, and the author presents to the profession the results of his work during that time. In the chapter on the vessel tone-maintaining function of the central nervous system, the author gives his theory in explanation of a large number of cases. The book is practically the publication of the author's conclusions, resulting from his own clinical work upon the subject.

Modern Surgery: General and Operative. By J. Chalmers DaCosta, M.D., Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia. Fifth revised edition, enlarged and reset. Octavo volume of 1,283 pages, with 872 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. 1907. Cloth, $5.50 net; half morocco, $7 net.

The first edition of this work was a Manual of Surgery, and was designed for the student especially, and was adopted as a text-book by many medical schools. Now the author presents the fifth edition, which is much larger and much more useful to the general surgeon as a reference book. Some of the new points of this edition include the new operations for ununited fracture of the femoral neck, operations of Hugier and of Murphy for ankylosis, Cushing's operation for intracranial hemorrhage of the newborn, Bier's method of congestive hyperemia, the treatment of neuralgia by injection of osmic acid, Brophy's operation for cleft palate, artificial stimulation of phagocytosis, scopolamin-morphine anesthesia, Meyer's operation for carcinoma of the breast, Young's method of perineal prostatectomy, Johns Hopkins operation for inguinal hernia, Mayo's no-loop method of gastro-jejunostomy, and Matas' operation for aneurism. The book has been carefully revised and brought up to date.

On Leprosy and Fish-Eating. A Statement of Facts and Explanations. By Jonathan Hutchinson. London: A. Constable & Co., Ltd.

1906. XXII, 420 pp., 15 plates, 8vo. Price, cloth, $3.25.

This masterly work of Professor Hutchinson is a "statement of facts" regarding leprosy as he believes those facts to be.

The book is more for the public than for the medical profession, and is, in part, a protest against the segregation of the leper.

While there are no leprologists that share Hutchinson's "fish hypothesis," still many of the arguments advanced are so convincing that, after reading the book, one feels that there must be some etiological connection between leprosy and fish-eating.

While the work naturally appeals to but few, it would bear close reading by the whole profession, for it is an admirable review of the subject of leprosy as it is to-day in various parts of the world; and it also teaches, what cannot be too often emphasized, that leprosy is, probably, but feebly, or not at all contagious. J. M. W.

The Principles and Practice of Dermatology. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois. New York and London: D. Appleton & Co. 1907.

Dr. Pusey has designed his work for the use of both students and practitioners. It is a volume of 1,000 pages, with 367 illustrations. Naturally, the subject of dermatology has much in it of the personal equation, and this feature is strongly marked throughout the book. Considerable space is given to the anatomy and physiology of the skin, general etiology, pathology, symptomatology and treatment. The first section of the book takes up the principles of dermatology, which treats of the subject as a whole. The second section, the practice of dermatology, which includes hyperemias, angio-neurotic dermatoses, inflammations, dry scaly inflammatory dermatoses, hemorrhages, infectious diseases of the skin, infectious diseases of hyphomycetic origin; then come the dermatoses due to animal parasites; the section on atrophies, and on anomalies of pigmentation; neuroses, new growths, and diseases of the appendages of the skin. The work has been carefully prepared, is presented in a systematic and attractive form, and will serve as a good text-book.

Physiological Chemistry. By Charles E. Simon, B.M., M.D., Professor of Clinical Pathology at the Baltimore Medical College. Third edition, thoroughly revised. Philadelphia and New York: Lea Brothers & Co. 1907.

The first edition of this work was published in 1901, and was essentially a book for the use of the students who came under Dr. Simon's care. The subject of physical chemistry cannot be separated from the laboratory; therefore a book treating of this subject must needs give exact information as to the experiments and reactions which are carried on in the laboratory itself. The book which Dr. Simon presents is thoroughly practical, eliminating theoretical discussions, and describing chemical methods in detail, presupposing a knowledge of general chemistry on the part of the student. The first section gives a general survey of the three great classes of food stuffs; the second section deals with the processes of digestion, absorption and excretion; while the third portion is devoted to the chemical study of the elementary tissues and the various organs of the animal body. The book is a most valuable adjunct to any course in physiological chemistry.

Materia Medica, Therapeutics and Pharmacology. Lea Series of Pocket Text-books. By William Schleif, Ph.G., M.D. Demonstrator of Medical Pharmacy in the Medical Department of the University of Pennsylvania. Third edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1907.

This is another one of the series of

text-books edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, New York; Visiting Surgeon, Bellevue Hospital, New York. The book includes pharmacology and pharmacognosy, medical pharmacy, prescription writing and medical Latin. There is a table of doses of poisons and their antidotes, and of incompatibles, together with a therapeutic index of diseases and remedies, and a general index. It is practically a larger book "boiled down," covering, as it does, the entire materia medica. It is a handy pocket text-book.

A Text-Book of Practical Diagnosis. The Use of Symptoms in the Diagnosis of Disease. By HOBRAT AMORY HARE, M.D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. New (6th) edition, thoroughly revised and rewritten. Octavo, 616 pages, with 203 engravings and 16 full-page plates. Cloth, $4.50, *net;* leather, $5.50, *net.* Lea Brothers & Co., Philadelphia and New York, 1907.

The sixth edition of this work appears simultaneously with the twelfth edition of Hare's "Text-Book of Practical Therapeutics," to which it is an accompanying volume. The idea of Professor Hare in presenting the two subjects of Therapeutics and Diagnosis in accompanying volumes is very practical, and the method adopted by him in presenting the latter subject is somewhat different from that usually followed in books on diagnosis; he approaches his theme as a physician must approach his patient, viz., symptoms first, and the deduction of the diagnosis from a consideration of these. Laboratory methods have not been given much prominence, the object of the book being more to present the subject of bedside diagnosis than laboratory diagnosis. The edition has been thoroughly revised and brought up to date.

The Principles and Practice of Modern Surgery. By ROSWELL PARK, M.D., Professor of Surgery in the University of Buffalo, Buffalo, N. Y. In one very handsome imperial octavo volume of 1,072 pages, with 722 engravings and 60 full-page plates in colors and monochrome. Cloth, $7.00, net; leather, $8.00, net, Lea Brothers & Co., Philadelphia and New York, 1907.

The present volume in an individual book which is the successor of "Surgery of American Authors" edited by Professor Park, which ran through three editions. His collaborators in that work have placed the results of their efforts, with the accompanying illustrations, at his service. It hardly seems necessary to publish a new treatise on the subject of surgery, for the past year has shown a greater activity in surgical books by American authors than any previous year. The extensive "System of Practical Surgery," by von Bergmann, edited by William T. Bull, has hardly been completed; William Wood & Company have been publishing a very exhaustive "System of Surgery" under the editorship of Drs. Buck and Bryant, of New York City; Dr. Keen, of Philadelphia, has just brought out a third volume of his comprehensive "System of Surgery"; the works of Fowler, Da Costa, and others have but lately appeared; and now the book of Roswell Park is presented for our consideration. The change from a system written by a number of men to that of an individual treatise increases greatly the value of the work. Notwithstanding the numerous works of surgery enumerated above, the work of Dr. Park is so individual that the volume written entirely by himself consitutes a most valuable addition to the literature of surgery. There is nothing especially new in the arrangement of the work, but it is well balanced and complete.

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ACUTE ANTERIOR POLIOMYELITIS ETIOLOGY

1. INTRODUCTION. By BERNHARD A. FEDDE, M.D.,

BOROUGH OF BROOKLYN—NEW YORK CITY.

THIS disease is at present believed to be an acute infectious disease. It occurs sporadically, epidemically, and at times endemically. Whether it is a specific infection is somewhat doubtful, though its occurrence in epidemics would argue for this view; no specific germ has been isolated in the very few cases which have come to autopsy in the acute stage. Some have argued that the typical involvement of the gray matter in the anterior horns indicated the selective action of a specific germ, but experiments have shown that any one of a number of pathogenic germs may produce the same lesion, and the preponderance of involvement of the anterior horns seems rather due to the directness of the blood-supply to this part. Moreover, it is said that, in cases clinically similar to the disease under consideration, other areas in the cord and even the posterior nerve ganglia were involved. From the usually violent constitutional disturbance—fever, prostration, delirium, convulsions—it is probable that the disease is a general infection, a bacteremia with infective embolism or thrombosis, causing inflammation of the arteries and surrounding tissues in the cord.

As to the mode of entrance, nothing is known; but since many cases are reported with antecedent diarrhea, it has been supposed that the germ gained entrance through an impaired or denuded gastro-intestinal mucosa.

This coincidence is probably the one noted in 1784 by Underwood, when he described a paralysis occurring in teething children, especially those suffering from bowel troubles. Most cases occur in the first or second year of life. Under ten years of age the sexes are about equally afflicted, while over that age, males predominate. It occurs after infectious diseases, particularly measles and small-pox; but, on the other hand, frequently attacks primarily healthy, robust children. Most of the epidemics have occurred in the summer time, but sporadic cases are noted all the year round. The old authorities lay great stress upon chilling as an etiological factor.

II.

CLINICAL STUDIES OF THE ETIOLOGY OF ACUTE ANTERIOR POLIOMYELITIS.

By DR. H. CLIMENKO,

Clinical Assistant to Prof. Joseph Collins in the N. Y. Post-Graduate Medical School and Hospital,

BOROUGH OF MANHATTAN—NEW YORK CITY

THE first epidemic of acute anterior poliomyelitis was reported by Calmer in 1841. It occurred in the small parish of West Felliciana, La., during the late summer months. The description of the disease given by Calmer as it showed itself in 10 cases makes it clear that he was dealing with anterior poliomyelitis.

In Europe, Bergenholtz, of Umea, Sweden, was the first to report, in 1881, a series of cases which occurred within a period of three months; here, also, the season of the year corresponded to that of Calmer's cases.

In 1885, Cordier, of Lyons, France, observed, during the months of June and July, 18 cases in a town of a population of 1,500.

In 1887, an epidemic occurred in Stockholm, during which Medin reported 43 cases.

In 1894, a large epidemic took place in the Otter Creek Valley, Vermont, which was reported by Caverly.

Aurbach found 9 cases in Frankfort on the Main in 1898.

In 1901, Wood reported an epidemic in California.

In New York, 10 cases were reported in 1899 by Mackenzie, and in 1902, Painter reported 30 cases.

Besides these, a number of smaller epidemics have been reported by various observers; one from Italy, one from Spain, and one from Australia.

Invariably all these epidemics began in the months of late summer or early autumn, and lasted almost until the beginning of the winter.

The 187 cases under our observation began to appear in the middle of July, and the statistics were closed about October 18. Fresh cases, not included in this report, are still coming to the clinics of Prof. Joseph Collins in the N. Y. Post-Graduate Hospital and in the Hospital for Ruptured and Crippled, but they are comparatively rare now.

ANALYSIS OF CASES.

Total No. of cases	187
Males	113
Females	74
Nationalities.	
Russian Jews	84
Americans	43
Irish	33
Germans	16
Italians	8
French	3

AGES.

Under 6 months, six. Among these was a child six weeks old. The only younger case is a child of 12 days, reported by Duchenne.

Between	6 months	and	1 year	9
"	1 year	and	1½ years	24
"	1½ years	and	2 years	49
"	2	"	3 "	48
"	3	"	4 "	25
"	4	"	5 "	8
"	5	"	6 "	1
"	6	"	7 "	1
"	7	"	8 "	1
"	8	"	11 "	1
"	11	"	and over	2

A history of hereditary syphilis was obtained in 7 patients. In two cases mental disturbances in the mother were present. Naturally such antecedent occurrences are not of importance, and they can have no bearing on the occurrence of the disease. Traumatism as a cause of the disease was given in 10 cases. Twenty-two patients were previously afflicted with some disease, as follows:

Cerebro-spinal meningitis	6
Diphtheria	5
Pneumonia	3
Measles	3
Rickets	2
Chicken-pox	2
Whooping-cough	1

COURSE OF THE DISEASE.

In all but 16 cases, the disease was ushered in by a moderate fever, lasting usually from one to four days; in one case the fever lasted 7 days; in one, 10 days; in one, 14 days; and in one, 4 weeks.

Pain was present in 24 cases, viz.:

Pain in parts affected	12
Pain in joints	6
Pain in spinal column	3
General soreness	3

Complete bladder incontinence, with dribbling urine, was noted in one case, a boy of four years.

As to *parts affected* the following was noted:

Paraplegic	54
Right leg	50
Left leg	45
Right arm	8
Left arm	4
All four extremities	4
Right leg and right thigh	2
Left thigh	1
Both arms	2
Fingers of both hands	1
Paraplegia and strabismus divergens	1
Paraplegia and right arm	2
Right thigh	2
Left hemiplegic form	5
Left hemiplegic form, including left face and left abducens	1
Right hemiplegic	3

In the beginning of the epidemic preparations were made to examine and study the cerebro-spinal fluid, but, unfortunately, the cases came to us in the post-febrile stage. At such time a cytodiagnostic and bacteriological study of this fluid did not seem important.

It is worth while noting here that on one occasion four patients came from the same house and two from the immediate neighborhood.

Gastro-intestinal disturbances were present in 80, or 43 per cent, of our cases. They were as follows:

Vomiting	33
Vomiting and diarrhea	34
Diarrhea	7
Anorexia	5
Constipation	1

In four the fever was ushered in by convulsions, and in eight a general herpetiform eruption was present; sore throat was seen in four cases, and in 15 instances stupor for two or three days was present.

Studying the above analysis, and comparing it with epidemics of the past, one is forced to admit that he is confronted with a problem which was formulated in 1880 by Selligmüler, and sustained in 1884 by Strümpel.

The gastro-intestinal disturbances (43 per cent.), the stupor, the convulsions, the eruption—this not noted in any previous description—would all point to the fact that we are dealing with a toxemia whose origin is as yet obscure, and because of its obscurity any etiological factor that may lead to a prophylaxis must not be omitted.

Until the present epidemic, the chief avenue of investigation was the bacteriological and cytodiagnostic study of the cerebro-spinal fluid and, to a lesser extent, of the blood. As yet no positive results of these investigations have been obtained. Schultze (*Münchener Medizinischer Wochenschrift*) is said to have found in the cerebro-spinal fluid Jager and Weichselbaum's diplococcus. Other investigators, among whom were Raymond and Sicard, could not affirm his findings.

Chapin, who thought he found a diplococcus in the cerebro-spinal fluid, subsequently withdrew his report. Geerswald, in 1905, demonstrated a diplococcus in the throat and cerebro-spinal fluid, but the investigations of Flexner during the present epidemic gave negative results.

Post-mortem examinations fail to reveal bacteria in any part of the central nervous system.

Whether the toxemia in question is due to the products of a specific organism or to some other chemical body, it seems to me that in attacking the cerebro-spinal fluid another very important channel was overlooked; as forty-three per cent. of our cases showed gastro-intestinal disturbances, why, then, should we not consider this channel as a port of entry of the bacteria or the other specific causing poliomyelitis?

The present state of coprology and method of examining the gastric contents, as well as the examination of food stuffs, should enable us to make more or less thorough study of the bacteriological and metabolic conditions of the gastro-intestinal tract.

It will not be amiss briefly to relate the history of a patient seen about a year ago. A child of three years, of good health but of delicate constitution, awoke one morning vomiting, with a strong breath-odor resembling acetone and a complete paraplegia. The knee jerks were absent. Prof. Collins, who was summoned, thought the symptoms complex and due to intestinal intoxication. Accordingly castor oil and salol were given in large doses; for three days the child was in bed, with a fever of 101° F., and unable to use its lower extremities; on the fourth day a cupful of pure mucus was passed, and soon after the child gained complete control of its leg. For a long time the child was weak, often stumbled, and for almost a month he could not walk more than a block; no atrophies, no reaction to degeneration was ever present, and the child is now in perfect health. Does not a condition like that speak of a toxemia in which the toxines produced in the intestines overwhelmed the centres?

Judging by analogy, is it then not possible that a similar condition is present in poliomyelitis, the difference being that in the latter the toxic substances not only suspend the function of the centres but actually cripple them?

It has also been noticed that the disease occurs oftenest in countries of a nearly even climate, as well as for a definite time of the year. The later summer and early autumn months are the season for ripening certain fruits; who can tell but that some of these articles are the bearers of the disease? When we further observe the nationalities as they come to our clinic, we see that they are people who come from a more or less equable climate. Countries further south are the least represented, but eight Italians being noted.

From what has been said one can see that a study from the gastro-intestinal tract, in connection with poliomyelitis, would naturally be a step in the right direction. It is, however, too early for us to make any specific statements in this direction.

Of other etiological factors it will be noted that males are slightly more exposed than females. The age most predisposed is between two and four years, which is the time when the child begins to walk, and probably due to this the lumbar enlargement is most frequently affected. Heredity here plays no rôle. Previous diseases, although seen in twenty-two cases, can have no relation with poliomyelitis, for among 187 dispensary patients, 22 suffering from infectious diseases is not a large number. The diseases themselves were not of a uniform character.

The pain shows that not only the motor cells, but that also the meninges, are in some cases involved, a fact shown by post-mortem reports. The lumbar enlargement, as mentioned above, suffers most frequently; next to this comes the cervical. From the strabismus and facial palsies we judge that the cells from the cranial nuclei are not spared in this disease, and that poliomyelitis may become an ascending disease, resembling Landry's paralysis, and cause death by bulbar involvement.

I should like to express my gratitude to Dr. Zabriskie for his kind suggestions.

239 East Broadway,
Manhattan.

III.

PREVIOUS HISTORY AND ENVIRONMENT.

By J. F. TERRIBERRY, M.D.,

BOROUGH OF MANHATTAN—NEW YORK CITY

THAT our knowledge of diseases which occur endemically or epidemically might be broadened and rendered more complete by a careful study of the environmental and other conditions under which they prevail seems quite apparent.

Whether there is an interrelation between certain affections that occur epidemically, whether the occurrence of one epidemic paves the way for the visitation of another, our present epidemic of infantile paralysis comes upon the heels of a visitation of epidemic cerebro-spinal meningitis. The conditions governing their spread, and the avenues along which they progress—the conditions in respect to season of the year, temperature and its rude variations, of rainfall, of the water supply, the altitude, and the supply of sunlight, the drainage—these and perhaps others are questions that up to the present time have not received the share of attention their importance deserves.

The occurrence in this city and vicinity during the past four months of the most severe epidemic of acute atrophic spinal paralysis of which there is any record, together with a report received from a village located in western Pennsylvania of the visitation of a triple infection, or rather of three infectious diseases, at about the same time, namely, infantile paralysis, epidemic cerebrospinal meningitis and typhoid fever, impelled us to attempt to gather some data bearing upon the environmental and other conditions attending an outbreak of this disease.

When we consider that infantile paralysis constitutes as high as eight per cent. of all the diseases of childhood, that it is the cause of at least fifty per cent. of the limps of this world, and that it permanently disables, in greater or less degree, at least ninety-five per cent. of its victims, the unusual interest the present epidemic has aroused in the medical profession of this city is easily understood.

When, in 1865, Prevost and Vulpian, in an autopsy on a case of atrophic spinal paralysis in a woman past middle life, found destructive changes in the anterior horn cells, the disease was rescued from the meaningless name of "essential paralysis of childhood," given it by Rilliet and Barthez, and its morbid anatomy was established.

It was still some years before the pathology of the disease was understood, and Charcot continued to class it in the category of hereditary family affections until Cordier, in 1885, recorded an epidemic that occurred in the vicinity of Lyons, France; so tenacious are old convictions that it was some time thereafter, it is said, before Dr. Charcot admitted that the disease was of infectious origin.

The first report of an epidemic of infantile paralysis was made by Colmer and appeared in the *American Journal of the Medical Sciences,* January, 1843, a small epidemic of ten cases in a village of southern Alabama. The epidemic occurred in 1841 and was called "teething sickness" by the reporter. Another small epidemic of fifteen cases occurring in Umea, Sweden, in 1881, has been recorded by Bengenholtz, but, with the exception of Marie and Strumpell, the infectious nature of the disease was not recognized generally until some time after Cordier recorded the epidemic above noted, and while it appears that the morbid anatomy and pathology, and the symptomatology also, I may add, have been pretty well understood for some time, we are still practically without knowledge of the cause of the disease.

In searching the literature of the subject with the hope of gleaning something that might be of value in advancing our knowledge of the environmental conditions attending the epidemic occurrences of the disease, I have found little of real value; reporters, with few exceptions, addressing their inquiries to the clinical aspects of the subject; however, I have found records of fifteen epidemics, and these indicate how widespread the disease prevails. From the cold regions of Norway and Sweden to the genial climes of Italy and our Gulf States, they have come from Norway, Sweden, France, Italy, South Australia, and in the United States from Massachusetts, Vermont, New York, Louisiana, Alabama, Pennsylvania and California. All of these epidemics, when the season has been mentioned, have occurred during the summer and early autumn months. Five of these epidemics, one recorded by Altman in South Australia, and four in the United States, have occurred during very dry and generally hot seasons. All of them have been in relatively low-lying districts, often in valleys that were narrow and consequently poor in sun supply.

Food and water supply seem to have no part in causing the disease directly, though they may act indirectly, and it seems highly probable that the various causes usually named as contributing to the production of acute poliomyelitis anterior act only in a contributory way.

Having word of a village in western Pennsylvania in which three infectious diseases were prevailing, as I have mentioned, two of which were reported to be infantile paralysis and epidemic cerebro-spinal meningitis, and desiring some definite data upon the subject, I journeyed thither in the latter part of September last. Ridgway, the name of the stricken village, I found about fifteen miles to the westward of the divide of the Allegheny Mountains, lying well down in a narrow valley surrounded on all sides by the less lofty peaks of these mountains which greatly restricted the supply of sunlight, and at the confluence of two streams, one, the Clarion River, a clean, wholesome-looking water-way; the other, Elk Creek, as foul, stagnant and unwholesome looking as possible. I was informed that the present summer had been one of the dryest in the history of the region and that the dirty Elk Creek had ceased to flow during the greater part of the hot season. Being a lumber and mining region, the population was largely composed of laboring classes, with many foreigners from north Europe and the Scandinavian countries; the village had no sewer system, depending mainly upon out-houses.

Until lately the water supply had been furnished by wells, and was in some part still; the public drinking-place drew its water from a well, and it was this well, I was informed, that furnished the infection for a very severe epidemic of typhoid fever then raging, there being 400 cases in a population of 6,700 people.

Upon inquiry and investigation I found but two infectious diseases prevailing, typhoid fever and infantile paralysis, the latter preceding the former in time of occurrence. At a mining village located on a tributary of Elk Creek, some nine miles above Ridgway, the first cases of infantile paralysis appeared in the early part of July, and at this place there were twelve cases. Cases next appeared, two weeks later, at Ridgway, where thirty cases developed, and one week after these cases first appeared, Portland Mills, located nine miles below Ridgway on the Clarion River, had its first case, and seven more were developed, totaling fifty cases in a radius of approximately fifteen miles; of these fifty cases, four died; three of these—two of them two months old and one six months of age—died after a very brief illness of one to three days, with symptoms of bulbar involvement; the fourth, a girl of ten years, died after an illness of ten days, the diagnosis of infantile paralysis, which was first made, being changed to cerebro-spinal meningitis before death. Two children of nearly the same age were ill in this family; one was reported to have completely recovered.

One of the physicians, Dr. Early, informed me that the disease was most prevalent among Swedes, and that in a practice of twenty-two years in the village he had seen but three or four cases previous to the present epidemic; he further informed me that none of the cases seen by him had been ill before the attack, and two cases had developed in two of the families he had attended.

IV.

SYMPTOMS OF ANTERIOR POLIOMYELITIS IN THE ACUTE STAGE.

By LOUIS C. AGER, A.B., M.D.,

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IN spite of the fact that in some cases the paralysis is the first symptom noted by the parents, there is every reason to believe that the earliest manifestation of the infection is always to be found in the gastro-enteric tract, with an accompaniment of fever. Whether this digestive disturbance indicates the primary seat of the infection or whether it is only a reflex due to the irritation of the central nervous system has not yet been determined. Among the other acute infections there are analogies to fit either hypothesis. Although vomiting and diarrhœa are very frequently present and often attract the chief notice, in a majority of cases constipation is an earlier symptom and may be as marked as in cerebro-spinal meningitis; these symptoms are always accompanied by a rise in temperature, although in mild cases this may be unrecognized, and it may last for a very few hours or it may be prolonged for days. The height of the temperature varies greatly and it is not always a measure of the cord involvement; the length of the preparalytic febrile stage also varies from a few hours to four or five days, possibly longer in rare instances. In some mild cases there is a history of a gastro-enteric disturbance one or two weeks previous to the paralytic attack, with a period of apparent normal health between. Convulsions are said to occur in a majority of cases during the first day or two, but this has not been the case in the present epidemic; they have been present in many of the younger patients—one to two years—but not in other cases. Coma is at times present in the cases that show a severe febrile stage with the symptoms of bulbar involvement.

Pain and Tenderness. Probably nothing has done more to confuse the general practitioner during the present epidemic than the text-book statement that pain is entirely absent in this disease; certainly pain and tenderness have been very prominent symptoms in all cases of extensive paralysis, and in some instances they have been present some time before the paralysis developed. It is also frequently stated that pain and tenderness are peculiar to the epidemic form of the disease, but this is probably an erroneous idea due to the fact that sporadic cases are generally mild or rather circumscribed, and that they are not usually seen until the acute stage has passed. In addition to the various neuralgic pains that at times give the impression of a multiple neuritis, tenderness on pressure and movement is a prominent early symptom. That this is not a true neuritis can be demonstrated in children old enough to discriminate, for the soreness is in the muscles, not in the nerve trunks.

These are, in general, the different

symptoms that make up the picture of spinal paralysis. Nevertheless there is probably no disease in which the individual cases differ more widely from one another than in anterior poliomyelitis, depending upon the location and extent of the lesions. In the most frequent type, the moderately mild infection with the paralysis limited to one or two groups of muscles, the diagnosis is comparatively simple, with the text-book description as a guide. There is, however, another mild type which might easily be overlooked, that in which some unusual group of muscles, particularly the deep muscles of the back, are the only seat of the paralysis; such cases are frequently unrecognized until the deformity has fully developed.

Another type which it is difficult or impossible to differentiate early consists of those cases in which the infection is so high in the cord that the disease closely resembles an acute meningitis with opisthotonus, convulsions, irregular and sluggish pupils, severe headache with rolling of the head, and the occasional sharp cry, alternating with periods of coma; such a case may recover with a very limited area of permanent paralysis.

On the other hand very distressing and peculiar symptoms may occur in cases which show rather a mild early stage with a very general paralysis, involving various parts of the trunk and the neck. If the muscles of respiration are sufficiently affected the patient does not last long, but such a condition is unusual. In cases of a lesser degree of paralysis, respiration is labored and may be diaphragmatic or entirely costal according to the seat of the trouble. At times such patients breathe and talk fairly well in a reclining position, but entirely lose their voice and nearly suffocate if put in an upright position. In these cases, also, the muscles of the neck and back may be so affected that the trunk will double up in almost any direction. If, in addition, the abdominal muscles are affected, the picture is about as hopeless and distressing as can be found in the practice of medicine.

V:

SENSORY SYMPTOMS

IN THE ACUTE STAGES OF ANTERIOR POLIOMYELITIS.

By WILLIAM BROWNING, M.D.,

BOROUGH OF BROOKLYN—NEW YORK CITY

THIS disease of the cord is usually regarded as purely motor in type, and as regards the later chronic condition this view is largely correct.

But during its onset, its development, and often during the supervening subacute stage, sensory manifestations are common. These may be grouped under three heads—gross sensory impairment, paræsthesias, and pain. Before considering these in sequence, it may be premised that, as these patients are usually young children and, moreover, in an unnatural febrile state, it is not such an easy matter to make sure about their sensations.

What is here said is based not only on the recent epidemic cases, but on previous sporadic ones, such as occur at all times. While it may not be quite certain that the two classes are identical, they are sufficiently so for present purposes.

I. Gross Sensory Disturbances. By this is here meant an impairment or suspension of all forms of sensation from the affected portion of the body; of this, little, if anything, appears to be known, and even where the occurrence is real, its duration is but transitory.

In illustration I will only cite briefly one recent case, that of a boy of four years, seen with Dr. J. B. Zabriskie. The day when motor paralysis of one leg became pronounced and unmistakable (about a day and a half after the onset of any symptoms), it was noted by the doctor that no evidence of sensation could be made out in that part by touching, pricking, or even by any gross tests; otherwise he was fussy and sensitive enough, even the other leg responding well to tests. The following day sensation had fully returned in all parts.

It would seem quite possible that the inflammatory swelling (hyperemia, infiltration, etc.) of the anterior gray might, by crowding and pressure, cut off for the time the transit of sense impulses in the more posterior sensory tracts. Of course, as these paths are not directly involved and the turgescence soon begins to subside, the interference would be but transitory. Neither is it to be expected that this special anæsthesia will occur in more than a portion of the cases—oftener in those where the inflammation is concentrated at one level; this makes its interpretation analogous in principle to that of the transient anæsthesias observed in ordinary cerebral hemorrhage.

In only a few cases do we have the favorable opportunity to make early and definite examinations on this point. I recommend it as a matter worth observation when the chance offers.

II. Paræsthesias. Some of these, such as stiffness and heaviness, may express real mechanical facts. In a few cases, however, there are other complaints of a mild nature; numbness and peculiar sensations of that type are, in these, mentioned as occurring in the part that is becoming or about to be affected. These are early complaints and on the whole are somewhat rare; they are unimportant and it is hardly necessary to indicate any explanation.

III. Pain. By far the most important effects on the sense side in this disease are the various forms of pain, and we can distinguish here a difference in the time and character of the occurrence of these forms: they are mostly in the invading and acute stages, while one special form belongs entirely to the subacute. The accompanying headache appears to correspond to that of the invasion stage of most acute infections.

Part of the early pain can be classed as an hyperalgesia such as is common in inflammatory and irritative conditions of the central nervous system, *e. g.*, in meningitis; here the distribution is peripheral, sensitive soles or skin elsewhere, pain at the shoulder or in the popliteal space, and various discomforts here and there without very close reference to paralyzed parts. Not rarely, even when the force of the attack is expended on lower portions of the cord, pain is complained of at the back of the neck. These can be put down as variously due to hyperæsthesia, local hypertonia, etc. It is hardly warrantable to speak of a neuritis, as the trouble subsides so soon.

Next we come to what appears to be a purely spinal pain, which is, in some few cases, extremely severe, persisting for one or more weeks; in other patients it is entirely absent, while in many it lies between these two extremes; from its character it appears to depend on the extent to which the spinal meninges are implicated in the process. If the lesion be limited strictly to the spinal gray matter, and not extensive, there is nothing to occasion this pain, but if the inflammation be severe at any level, there may well be some co-ordinate involvement of the membranes, and with this the severe pain usually attendant thereon; this may even be spontaneous, but is greatly increased by any movements of the spinal column.

In many of these cases, during all the acute stage a distinct tenderness exists along the spinal column, corresponding to the site of the inflammation; this may even be one-sided and is apt to persist through the subacute stage. That congestion about the spinal bones might easily be associated with poliomyelitis is evident from the vessels that accompany each spinal nerve, connecting the vertebral with the myelic.

It is this spinal pain that appears

to be so favorably influenced by local counter-irritation.

There is another little recognized type of pain, unlike the preceding in character, and distinctly later in appearing. This is the soreness and tenderness that comes on after the acute stage has passed, and is wholly peripheral in site; it is principally in the affected muscles (myositis), which become tender, and the corresponding nerve-trunks may also participate. There is not so much spontaneous suffering from this, as painfulness on motion and manipulation; it is most readily elicited by pressure on the respective muscles, and is clearly due to the secondary degeneration that follows in consequence of the damage to the anterior gray horns of the cord. We know, experimentally, that after nerve-section it takes from two days to a week for the muscular degeneration to become evident; it then persists for an indefinite time, in light cases for a week, more or less, and in severe ones as long as a month.

It has a prognostic value. For, as soon as it can be mapped out, we are able to distinguish in these young subjects more exactly than by electrical or other means the extent of the muscular involvement.

VI.

THE CHRONIC STAGE OF POLIOMYELITIS ANTERIOR.*

By ARTHUR CONKLIN BRUSH, M.D.,

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THE chronic stage of this disease may be said to begin with the period at which the motor cells of the cord, which have not been destroyed by the inflammatory process, begin to regain their functions. This usually occurs at a period from ten days to six weeks after the onset; but in some cases it may be delayed as long as three months.

The paralysis then begins, as a rule, to diminish rapidly in extent, this improvement appearing first in the parts last involved; this is preceded in these muscles, for a few days, by a return of their reflexes and normal electrical reactions. Such recovery may occur, as has been said, as late as three months, but after that time no recovery is possible.

It unfortunately happens in the vast majority of the cases that a more or less extensive destruction of the motor cells occurs, and as a result we find certain muscles or groups of muscles permanently paralyzed; in these muscles rapid atrophy occurs, often associated, in adults, with tenderness. In these muscles reactions of degeneration can be noted after the fifth to the seventh day of the disease, and the reflexes are permanently lost. In young children this rapid wasting often is not apparent on account of excessive fat. It is said that even in these paralyzed and atrophied muscles, when all the motor cells which control their fibres are not destroyed, some slight return in bulk and power may occur.

Such permanent paralyses are most common in the lower limbs and on the left side, and when more than one limb is affected they are often asymmetrical. From the anatomical arrangement of the spinal motor cells we find that certain groups control functionally associated groups of muscles, and that in focal lesions, such as occur in this disease, such groups are found to be affected. This fact enables us to divide these cases into certain types which, when this disease has occurred after the development of the body, causes them to resemble progressive muscular atrophy; and Gowers further claims that this disease may be followed by progressive muscular atrophy. Thus we can, as a rule, divide these paralyses into an upper and lower leg type, and an upper and lower arm type. In the lower leg type, which is the most common, it usually involves the anterior tibials, more rarely the posterior tibials; while in the upper leg type it affects the psoas, iliacus, and glenti muscles; in the lower arm type it involves the thenar, hypothenar and interossi muscles; while in the upper arm type the scapular muscles, deltoid, biceps and supernator longus, are affected.

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*Read before the Brooklyn Society for Neurology, October 30, 1907.

Besides these usual types it is not rare to find more extensive paralyses as a combination of the two types in one limb, the involvement of more than one limb, or, more rarely, the involvement of some of the trunk or spinal muscles.

The paralyses of the affected muscles cause a want of opposition to their normal opponents, and these undergo contracture and shortening, leading to deformity and often to dislocation in certain joints, the most common result of such action being the various forms of club feet, spinal curvature, and dislocation of the head of the humerus.

In young children the growth of the affected limb is often found to be profoundly disturbed and it remains smaller and shorter than its fellow. Seiligmuller also claims that the traction of the unopposed muscles may result in an actual elongation, but this must be rare, at least I have never seen it.

Besides these deformities and disturbances of the growth of the limb, other trophic changes are common. The circulation is poor and the skin is cold and cyanosed; this disturbance in the circulation and growth of the limb appears to be due in part to the disuse and want of impetus to the return venous circulation from want of muscular contraction, just as we find similar conditions of wasting and cyanosis in limbs paralyzed in adult life as the result of cerebral insults; but not wholly so, for, besides, we find often a want of growth sharply defined to certain bones, as certain ones of the tarsus, which could not be due to any such general disturbance of the nutrition of the member. We must admit then that there are also trophic changes due to the direct disease of the sensory elements of the cord which preside over the nutrition of bones and skin.

VII.

TREATMENT OF THE ACUTE STAGE OF POLIOMYELITIS.

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MY remarks on the treatment of the acute stage of anterior poliomyelitis will be limited to a consideration of this disease in the epidemic form, such as we have just passed through. In many clinical respects the epidemic and sporadic disease are quite different. We will first discuss some features of the acute febrile stage.

At the outset the child should have free purgation with calomel or castor oil. The patient should be kept at perfect rest, preferably lying on the side so that the spine will not be the most dependent part of the body; a plank back-rest in the bed will be found a great assistance in securing comfort at rest on the side. If a rapid extension of inflammation in the cord is suspected, the prone position should be adopted. Warmth may be applied over the affected part of the cord by poultices or fomentations. The old remedy of cupping, wet or dry, and the use of leeches may find some theoretical justification. The very marked relief that mustard plasters, poultices and foments give to the pain renders it probable that they exert a beneficial influence in all cases. Inasmuch as the paralytic effects occur relatively late in many cases, one should try to hasten the elimination of the toxins by hot baths and packs, produce diuresis and bowel-cleansing by enteroclysis, and encourage ingestion of large quantities of hot water. The free use of water inside and out I believe will be of great benefit.

In such a disease as poliomyelitis, where there is a distinct and natural tendency for the lesion to cease to spread after the first few days and then to lessen in extent, great difficulty is encountered in forming a just opinion of the effects of drugs in the acute phase. Thus, there seems little evidence at hand that such drugs as belladonna and ergot exert any influence in limiting the palsy; however, they may both be used in full doses without doing any actual harm. There can be no doubt that the physical remedies above mentioned are of much greater value than drugs; it is therefore quite apparent that the nursing care is of prime importance, both to the comfort of the little patient as well as in limiting the spread of the disease in the cord. In the general management of the case two points are of extreme importance: cleanliness and undue pressure to avoid bed-sores. If cotton wool is not sufficient, a water-bed should be employed. That there is no urine retention requires constant watchfulness.

All the precautions laid down here should be employed for several days beyond the acute febrile stage, as an apparent recurrence is by far from unknown. This reminder is especially true in those cases in which the constitutional symptoms have been prolonged or continue after spinal symptoms occur, or in which the palsy supervenes in successive stages, as in many cases of the present epidemic. Perfect rest should be maintained for two weeks or more. The same prolonged care is necessary when there is neuritis or tenderness of the limbs. It should be remembered that where wasting is taking place some slight tenderness of the muscles and nerves is to be expected to accompany the process; it is purely secondary in nature and does not call for special treatment.

No electrical tests should be employed until all nerve tenderness is absent, and then the isolated faradic shock should be applied to the muscles with the greatest care, as the test is most painful. The extremities should always be so placed that contractions are not forced.

We may therefore summarize the treatment of the acute stage of poliomyelitis in rest, free elimination by the bowels and kidneys and the best of intelligent nursing care.

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VIII.

THE ORTHOPEDIC TREATMENT OF ANTERIOR POLIOMYELITIS.

By T. M. CLAYLAND, M.D.,

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POLIOMYELITIS anterior produces paralysis in several ways:

First. Gravity, as the drop band or foot in anterior paralyses.

Second. Over-stretching of the paralyzed muscles by the above dropping.

Third. Contracture of the unopposed or unequally opposed non-paralyzed muscle, as seen in the short anterior muscles in paralysis of the calf muscles.

Fourth. The transmitted weight of the body as seen in the twisting of the foot inward at each step, when, in consequence of paralysis of the peroneal muscles, the foot has been drawn inward by the inner group of muscles. In this case the action of the unopposed muscles and the force of transmitted weight act in unison. In other cases the different causes may act opposedly; for example, in paralysis of the anterior and posterior leg muscles, the first deformity produced is the drop foot, but later, when the weight of the body falls on the foot, there may develop a calcaneo valgus.

Fifth. The unequal growth of bones, ligaments, muscles, fascia and skin, the stretched parts growing more than those always relaxed.

Sixth. Subluxations due to relaxed ligaments, muscles and fascia, as seen in the flail-like shoulder joint or at the hip, where loose ligaments with the flexion produced by the tensor vagina femoris which usually escapes the paralysis even when all the other muscles are involved, place the limb in a favorable position for dislocation. These dislocations are usually painless and often unrecognized.

In the orthopedic treatment of the paralyses we have three objects in view:

First. To prevent deformity.

The contracture and lack of growth may be prevented to a large extent by massage, kneading and beating the parts, with passive motion given by the nurse or mother, putting the part systematically through all of the normal motions and extending to the extreme limit of motion in the direction opposite to that in which deformity is apt to occur.

Exercise is the best stimulus to growth and to induce the paralyzed muscle to again assume its function.

Electricity—faradic if the muscles will contract to it, galvanic for the completely paralyzed muscles—does good, not as a fetish but only by producing contractions, and, like all other contractions of muscles, must be intermittent.

One of the important factors of the early treatment is to prevent the bedclothes from pressing the feet into a bad position and to support the paralyzed limb in a proper position. The parents usually object at an early stage to the application of braces, for there is then no deformity; it is, however, easier to prevent than to cure deformity, so suitable braces should be applied.

Since a limb or muscle will not grow unless it has a good blood supply, a paralyzed limb becomes shorter, thinner and colder than its mate, therefore, heat, massage, electricity, passive motion, and especially the functional use of the part, which sends more blood to it, helps to develop the limb. Consequently, appliances which allow a child to use a limb which otherwise would be carried around dangling and gradually becoming more and more deformed and useless, help to strengthen and develop the limb, and the child soon learns to substitute the use of one muscle for the paralyzed one.

Second. The cure of deformity.

Sometimes night braces may be used even if none be used in the daytime. Braces are applied to support the limbs, to immobilize joints, to take the place of or supplement the paralyzed muscles, and the better to enable the patient to use his limbs. In paralysis of the plantar muscles—interossi and lumbricales—we have an arched foot with the first phalanx extended and the other flexed, due to the fact that the flexors of the first phalanx are gone; here braces are useless, and only by a proper transplantation of the extensor tendons into the periosteum of the flexor side of the base of the proximal phalanges with plantar fasciotomy may we hope to cure our case.

In paralysis of the peroneal group there is a tendency to talipes equino varus; if the case be taken early and the outer side of the sole raised and extended, the case may be prevented from becoming deformed; sometimes an artificial muscle may help, but as a rule artificial muscles are of little use.

In old cases a good brace is one composed of two uprights attached with or without a joint to a sole plate, having a riser on the inner side of the foot and a strap passing around the leg and inner upright holding the foot in an over-corrected position so that the weight of the body will aid instead of increasing the deformity.

In paralysis of the inner group of leg muscles the treatment varies, depending upon what muscles are affected, the tibialis anticus or the posterior group.

The milder forms produce a flat foot, and here it is the fad to apply a more or less firm steel arch support instead of building up the inner side of the sole, which inverts the foot and throws the weight on the outer side of the foot and corrects the deformity.

If a brace is needed it is usually two uprights with a calf band and a sole plate with the riser on the outer side of the foot and the strap going around the leg and other upright. In all leg braces the brace may be fastened below to the shoe or to a sole plate worn inside the shoe.

In paralysis of the anterior groups we have a talipes equinus, and should apply a brace with two uprights and a stop-joint, allowing dorsal flexion but not extension beyond a right angle; either springs on the upright or artificial muscles of elastic or steel may be used.

In paralysis of the calf muscles the resulting calcaneus, often associated with valgus, is overcome by a brace without joint, so that the weight can be carried on the band passing over the front of the leg; if the weakening has produced a genu recurvatum the brace may need to be carried up the thigh.

If the paralysis extend to the anterior thigh muscles, the patient places the foot on the ground and with the hamstring muscles pulls the knee backwards, making the posterior muscles do the work of the extensors; a slight amount of genu recurvatum adds to his stability.

The brace must be extended as high as possible on the thigh, it being possible to extend it higher on the outer side; in younger children it is better without joint, but older children may have a snap-joint, allowing flexion at the knee when the child sits down; a padded strap over the knee prevents its bending.

In paralysis of the posterior thigh muscles, the biceps often escapes and induces a deformity of flexion with genu valgus, outward rotation, and often sub-dislocation of the outer condyle; in this case the inner upright has a pad opposite the knee, and the outer upright a strap pulling the knee outward and backward.

Paralysis of the muscles of the hip causes the severest of all deformities, and your resources will be taxed to construct a brace which will give the needed support. Ordinarily the outer upright is extended upwards, a joint made opposite the hip joint and attached to a pelvic band with or without a chest extension, perineal straps, artificial muscles or suspension attachments.

Infantile paralysis causes lateral curvature in three ways: by shortening the leg and the consequent standing on one leg; by loss of function of one paralyzed arm, and by paralysis of the intrinsic muscles of the back.

When the chest muscles are paralyzed on one side, the opposite lung is used more, so we should have these patients sleep on the good side in order to encourage the paralyzed side to expand.

As a rule paralysis of the upper extremity does not need braces.

If there is paralysis of the biceps, we may improve the condition by an artificial muscle to flex the forearm.

Operative treatment. Brisment Forcé, tenotomy, myotomy, fasciotomy, shortening or transplantation of tendons or muscles, osteotomy, arthrodesis, or excisions.

The mildest and best operative treatments are the hourly manipulation given by the mother or nurse; if deformity has developed, more force may be applied by the surgeon either with or without anesthesia, and if he cannot use force enough manually he may employ some form of wrench. In any case the deformity should be over-corrected and held in that position by plaster of paris or brace.

Every case must be studied carefully before operation. If twisting is not sufficient to overcome the deformity, tenotomy, or fasciotomy; or, if there are useless muscles which exaggerate the deformity, as, for example, the dorsal flexors in pes cavus, they may be transplanted to other tendons or to the periosteum; free the tendon well back and carry it as straight as possible with little handling; sew it taut and then support the limb in the proper position by plaster of Paris. Arthrodesis of the shoulder, elbow, wrist, hip, knee or ankle joints may aid the use of the limb by causing anchylosis.

Osteotomy or osteoclasis near the joint will enable you to over-correct the deformity.

In calcaneus the astragalus may be removed, the foot dislocated backward, and the tendons shortened and transplanted as in the Whitman operation.

Nerve transplantation undoubtedly has a future before it. The proximal end of a part or all of an unparalyzed nerve is sewed to the distal end of the paralyzed nerve; the greatest objection to this operation is that it is useless after the nerve has been paralyzed for a year; and in any new case we do not know how much improvement will take place; however, where the faradic reaction is absent, a healthy motor nerve is in the neighborhood, and when from three to six months have elapsed, it is a justifiable operation.

IX.

NEUROLOGICAL AFTER-TREATMENT OF ANTERIOR POLIOMYELITIS.

BY FREDERICK TILNEY, M.D.,

BOROUGH OF BROOKLYN—NEW YORK CITY

THE general conditions of muscle-nerve integration, based as they are upon the trophic interdependence of the muscular fiber and its motor neurons, are, perhaps, the only justification for speaking of the neurological after-treatment of anterior poliomyelitis. For upon what means may we rely to combat the inevitable chromotolysis affecting certain areas of the cord and followed by the more or less complete primary degeneration of a very large number of motor fibers? Failing such agents, the so-called neurological after-treatment of poliomyelitis becomes wholly expectant at all stages.

But if the essential relationship between the neuron and muscle fiber is borne in mind, our attention must at once be directed to the important phase of the problem, namely, the substitution of "artificial trophies" to compensate for myotrophic influence, of which the muscle has been deprived in consequence of the impaired functional capacity of its motor neurons.

Under normal conditions a muscle is made up of a number of synergistic fibers supplied by a great many neurons, the cells of which are not situated in the same level or even in the same segment of the cord, so that some of them may escape the focus of the inflammatory process or at most pass through a partial chromotolysis from which they will eventually recover. The ideal treatment at this period would be the employment of such agents as will hasten the return of normal metabolism in the areas involved and aid the regenerative processes in the nerve-fibers. Resumption of functional activity on the part of the diseased cells as well as the stages of regeneration must remain, in large part, a matter of time.

If the lesion in the cord has completely destroyed some of the nerve cells pertaining to a particular myotomic segment, partially impaired others, and left some comparatively intact, then some of the fibers of the muscle or muscle-group corresponding to these nerve elements will be entirely destroyed, some will be functionally impaired and some remain relatively intact. It must be our aim to assist the impaired trophism of these muscle-fibers, in which there exists the possibility of restitution; in the second place we must look to avoid all factors, mechanical or otherwise, which may be operative in further embarrassing the already afflicted muscle tissue. If we can stimulate the relatively intact fibers into physiological hypertrophy our purposes will be further conserved; of the fibers destined to undergo complete destruction we need take no account.

By *massage* the blood-vascular and lymphatic condition of the affected muscle may be materially improved. This massage should not be a mere chafing of the skin but should aim to so reach the muscular structures as to strip them in so far as possible of the blood and lymph, thus determining an inrush of fresh blood and preventing passive congestion; to accomplish this end the pressure will have to be very gradually increased, although it is quite remarkable how rapidly even small infants will become tolerant to deep massage. It is advisable to begin this treatment very soon after the febrile stage has passed. The child should receive a treatment of about twenty minutes daily, and the parents may be instructed in the method, so that a shorter period of massage may be given night and morning. It is evident, if we consult the necessities of the muscle, that to defer this procedure can be of no real benefit and may deprive the general treatment of one of its most helpful factors.

It is also well to conserve as much of the body-heat as possible by the application of a close-fitting chamois-skin sheath.

Electricity has been a much-vaunted agent in the treatment of this and many allied amyotrophic conditions. Truth compels us to admit that we are still very much in the dark as to the exact effect of the galvanic current and faradic currents; an interrupted current of any type will certainly produce muscular contraction in a partially affected muscle, so that if repeated artificial contraction of a muscle is a desideratum, then we should by all means continue the use of the electric current, and for this purpose the slowly interrupted galvanic and low tension faradic currents are the best. This treatment is well combined with the massage every second day.

Exercise. Provided the child is otherwise in good health exercise should be encouraged as much as possible, always with the caution to avoid fatigue. Of the forty-five cases treated in the neurological department of the Polhemus Memorial Clinic, this instruction was given to the mother in each case, and we take pleasure in reporting that without a single exception these cases have very materially improved. It is noteworthy that in all those children previously able to walk, and affected in one leg only, the improvement has been most rapid and marked, whereas we have experienced more difficulty with arm cases, largely because the patients cannot be made to use the upper extremity consistently, even if constantly prompted.

Passive movements. Some cases present a primary, transitory paralysis involving all the muscles of the body; this extensive trouble sooner or later disappears leaving the secondary residual paralysis. Out of fifty cases only eight gave a history of pain and tenderness (17 per cent.) and all of these were cases in which there was an involvement of the entire body musculature. Both pain and tenderness were most marked about the joints of the lower extremity, especially the knee; it must be remembered that due to the paralysis the body and limbs are constrained to remain in the same position for hours, perhaps days, at a time, and surely this unnatural condition cannot be without its effects in occasioning some of the pain and tenderness. To avoid this occurrence, light passive movements should be used even at a very early period, while the position of the body should be frequently changed. In all of the eight cases above cited, pain and tenderness disappeared with the return of sufficient power to enable the patient to move the body and limbs even to a slight extent.

Exercise as a muscle-builder is too well known as a physiological fact to dwell upon it here further than to say that the strong and large muscle is that one which has been consistently trained and exercised. We may apply this principle to the still intact fibers of the affected muscles, expecting not only to produce a beneficial hypertrophy, but also to aid the nutrition of those other fibers which are partially incapacitated. In arm cases, our efforts in this direction are especially discouraging, for it seems almost impossible to make the child, however intelligent, appreciate the necessities of exercise, and the limb only too frequently hangs useless and neglected. As a rule, too, these cases show an involvement of the entire arm musculature, with a particularly pronounced paralysis along some one distribution. A very simple device to make the child use whatever power still remains is the overhead pulley and cord, with a padded cuff so arranged that the sound limb may be employed to aid in exercising the affected one; exercises in different positions may thus be performed and should be done once or twice daily, a given number of times for each movement. If any motions are possible to the arm, these should be regularly practised while a careful watch must be kept to detect the return of new motions, which should then be added to the routine list of gymnastics.

The necessities of locomotion to some degree obviate this difficulty in leg cases; but here, ofttimes, we have a new problem to deal with. The greater number of these cases are of the hamstring-peroneal type with knee-back and toe-drop; the genu recurvatum is generally due to a relaxation of the hamstrings and the gastrocnemius muscles, but not infrequently the upper portion of the knee truss alone is deficient, leaving the soleus and gastrocnemius in a state of nearly normal tonus; as a consequence, the unopposed action of these muscles produces a contracture whose evil effects are seen not only in these muscles themselves, but also in the embarrassment to the tibialis anticus and peronei; these latter are immediately put under tension, and whatever portion of their fibers is still capable of contraction is now at a mechanical disadvantage due to the stretching. As soon as any rigidity is observed in the toe-drop, we have made it a practice to have the leg put up in a cast to correct the deformity; the cast thus employed has been so devised as to leave a window over the anterior tibial region for purposes of massage and the application of the active electrode. While presenting these advantages such casts are not all that might be desired from the mechanical standpoint. Casts are preferable to braces, as these latter are more or less dependent upon the carefulness and attention of the parents.

The first step in the treatment is the exact determination of the muscles or muscle group involved; then follows the patient application of all of those methods which tend to improve the nutritional status of these muscles combined with such precautions and active interference as will lessen the embarrassment of the affected tissues in the effort towards repair or compensation.

The prognosis is best for ultimate recovery when only one leg is involved; less favorable when both legs are partially involved, and least favorable in the case of the arm paralysis.

Discussion.

Dr. Smith Ely Jelliffe said that a thought came to his mind, which had been suggested by previous speakers. Is there such a thing as a partial prophylaxis for acute poliomyelitis? Are there cases which, by paying attention to the little things, may be cut off before the stage of toxemia has advanced to such a point that a certain amount of destruction is inevitable? He believed that there were such cases, and the history of these large epidemics teach, that by reason of the large gamut of symptomatology present, that we are permitted to draw the reasonable conclusion that very mild cases do occur, and when very mild cases do occur, it seems rational that cases might be rendered even more mild by very prompt treatment. Some of these measures of prompt early treatment had been spoken of. Rapid elimination is of primary importance, because gastro-intestinal disturbance seems to play such a very predominant rôle in the after-treatment following toxemia. Hot baths, even if prolonged; baths between 102° and 105° for from 15, 30, 45 minutes to a whole hour at a time are very efficient agents in the very early treatment of this affection. They serve in limiting the intoxication and in eliminating toxic products by diaphoresis, and by bringing the blood to the periphery of the body, also relieve congestion in the more delicate structures of the spinal cord and brain. Hot packs act in the same way and may be used if a bath-tub is not available.

Spinal irritation, the speaker said, acts in a similar manner. Following the researches of Head, it is known that irritation along the spinal skin segments has a very marked effect on the tone of the blood vessels in the spinal cord itself. Therefore, counter irritation by such agents as mustard plasters, heat or ice to the back, cups, etc., are all of a great deal of importance in limiting paretic complications in the walls of engorged blood vessels.

What can one do for the painful cases? It seemed to him that it is advisable to give analgesics to some of these little patients, if they are not otherwise harmed by them. Codeine had given him excellent results. Anti-pyrine, acetanilid, aspirin, phenacetin are also serviceable. Naturally in giving codeine one must bear in mind the fact that constipation may result, and guard especially against it. With the synthetic analgesics no such danger is met with. Chloral has served many useful purposes in many of these children, in whom pain is accompanied by a certain amount of spastic rigidity in certain muscle groups. It allays the irritability of the contracting muscles, and is of service, in addition, by causing sleep.

Some of the features of the present epidemic, which had been already referred to, might again be alluded to with benefit. Such are the presence of meningeal symptoms, headache, photophobia, false Kernig and pain of a root irritation or neuritic character. These make the diagnosis cloudy for from 48 to 96 hours, and it sometimes is extremely difficult to make a differential diagnosis between acute poliomyelitis and epidemic cerebro-spinal meningitis or, in more adult cases, multiple neuritis. The present epidemic of anterior poliomyelitis by reason of the epidemic of cerebro-spinal meningitis of last year necessarily called attention to the association of the two diseases. Physicians naturally had in their minds the idea that epidemic cerebro-spinal meningitis might still be about, and thus closer attention was paid to those signs that pointed to this disorder; nevertheless other difficulties have arisen in the early diagnosis of these cases.

Lumbar puncture in the early stages, 36 to 48 hours after onset, seemed to the speaker to be very desirable in trying to clear up this difficulty. No one has doubt of its service in clearing up the diagnosis, but he believed it to be of distinct service also as a therapeutic agent. In certain cases of acute cerebro-spinal meningitis, especially in which there is tension, with hydrocephalus, etc., the relief of the tension in the spinal cord is of distinct value. He believed it is also of aid in a number of these poliomyelitis cases, although it has not yet been demonstrated that there is an excess of pressure within the cerebro-spinal axis. In more than one instance he had seen a more or less rapid recovery (not a return to a normal condition by any manner of means), or a distinct betterment within two or three hours following bar puncture. Just whether post hoc ergo is admissible as an argument he preferred to leave open and simply record his impressions.

Some of the rarer cases with involvement of the bladder and rectum should not be overlooked. Whereas we know that the anterior horn cells are more seriously involved, yet it is true that there are other portions of the spinal cord which are also implicated, and the rectum and the bladder not infrequently participate in this extension. Therefore, catheterization is imperative in many of these small patients, and strict aseptic precautions are absolutely necessary.

With reference to the prognostic features: What is going to be the outcome? What can we say to the parents in the early stages, in the third or fourth week perhaps, of the disease, before the picture has become stereotyped? In the first place, if we find a case with widespread involvement, it argues more or less for a thinning out, as it were, of the toxemia. He believed that when all four extremities are somewhat involved, with the face and even the eye muscles, apart from those extreme cases, in which extension to the bulbar nuclei causes death; when we find these widespread extensions, it seemed to him we have a fairly good prognostic sign. When there is a lack of temperature change in the afflicted parts, it seemed to him that this is a good prognostic sign. When no trophic changes occur early in the skin, and there are no trophic changes in the nails within the first three or four weeks, these are features of good prognostic importance.

It has been said here, that in the later stages, if after three months electrical reactions are not present, we may look upon the muscles as being in a hopeless condition. He did not believe this at all. It seemed to him that electrical reactions may be lost in certain muscle groups in this disease almost for years, certainly two or three or more, and yet a large amount of repair come to be achieved by after treatment. One of the surprising things in the treatment of the chronic cases, is the very good outcome that gymnastics and orthopædics, through many years of application, play in bringing about a far greater restoration of function than anyone dreamed of in the early stages of the disease.

One point with reference to exercise, and that is, that swimming in a deep bath-tub is a very useful method of applying these exercises in the early stages. These little children can be placed in a large bath-tub and kept in water at a temperature of 102° to 105° and can play about in the water. The weight of the limbs is rendered nil, they are not used to support the body, and we get the maximum efficiency of motion that is possible in these paralyzed limbs in the water.

In the discussion it has been said that nerve transplantation is useless if the muscles have been paralyzed a year. This opinion Dr. Jelliffe could not subscribe to. On the contrary, is has been fairly well shown by the work of Ballance, of Marinesco and of others, that even when a paralysis has existed five, or even eleven years, in some well-recorded cases of facial paralysis, for instance, there have come about restorations in function after nerve transplantation. Many of the newer studies on nerve regeneration point to the fact that when the nerve fibres are provided with a predetermining tract of their own nature, *i. e.*, an old dead nerve trunk, no matter whether it be three, five or ten years after degeneration has taken place, if a sound nerve trunk be spliced on a degenerated nerve, the fibres from the sound nerve find their way down in the old nerve trunks. It seemed to the speaker, therefore, that there are possibilities in nerve transplantation of which we little guess at the present time.

Dr. Elias H. Bartley said he knew of no way to make a diagnosis during the first forty-eight hours in these cases, except in the very few cases where the first symptom, almost, is the paralysis, and where the febrile stage escapes attention. Usually if called to these cases at the onset, at the time of the vomiting or convulsion, if such occurs, he knew of no way of making a diagnosis. He was in hopes some of the speakers would give us an idea of how we could make a diagnosis during the first forty-eight hours, and how we could apply the various means that possibly we might apply, such as the hot bath, etc. The difficulty is that during the first three or four days there are no distinctive symptoms, so far as he knew, by which one could make a diagnosis of this particular affection.

There was one thought that he wished to mention, in the etiology of the disease. In one of the papers the suggestion was made that the toxin might pass in through the gastro-intestinal tract, and cited a very interesting case, which was somewhat similar to one or two that he had seen, one specially that he remembered, where the case was a very acute gastro-intestinal intoxication followed by a paralysis of one leg, quite pronounced for a few days, and followed afterward by a very sharp attack of chorea and other symptoms that lasted about six months before you could say the child entirely recovered.

The speaker said he was reminded of the investigations of Van Ermengen on meat poisoning in 1896, in which he isolated a toxin, and from that toxin obtained, by immunizing animals, an anti-toxine. In studying the effect of this toxine on animals, he found it had a selective action on the gray matter of the spinal cord. That there was a degeneration of the cells, which with small doses produced a sort of hyaline or less compact condition of the nuclei of the cells; with larger doses the nuclei of the cells underwent disintegration, and in fatal doses there was almost a complete destruction of cells. He found by administering the antitoxin with the toxin that the regeneration of the cells was much more rapid, and in some cases the degeneration was very much reduced or prevented.

This seemed to the speaker to get pretty close to the cause of acute poliomyelitis, and the fact that this toxin affects these particular cells in the spinal cord would seem to indicate this disease may be a toxemia, not a bacterial infection of the cerebro-spinal canal, and this was, as nearly as he could picture it to his mind, the real etiology of the disease. Where the toxemia arises he could not say, but he believes that in a good many of these cases the toxemia originates in bacterial disturbance in the intestinal canal.

In regard to the treatment he wished some of the gentlemen would clear up one point, and that was the question as to how early to begin massage and how early to begin electricity. We have had already at least two opinions: one to begin as early as the first week after the beginning of the paralysis; the other is to wait until all tenderness and soreness of the muscles has passed.

Dr. Walter Truslow stated that his association with the subject of anterior poliomyelitis had been much more acute since the epidemic that we have just been having. However, for some years he had had a number of these cases to treat from the orthopædic standpoint.

As to the question of the mechanical appliances, he would like to emphasize what Dr. Clayland had said about the necessity of exactly and carefully studying conditions present; of determining just what is the balance or loss of balance of the muscle forces; and of ascertaining how gravity affects the case (whether upon a hanging arm or through a body-lean to one side, or by superimposed body weight upon the leg or foot). He thought these considerations important.

Are the reasons for giving this protective treatment other than those arising from the questions of the prevention of deformity? The speaker wished to state his belief in the therapeutic value of the retention of the positions that these affected joints are put into—the over-corrected positions of the muscles. He thought that the therapeutic value is very great, and he would like to endorse what Dr. Jelliffe had brought out—the fact that these cases may recover long after three months, showing much return of the power they have apparently lost. Why that should be he did not know. He thought the effect of overcoming the strain of the paralyzed limb mechanically allows the blood to circulate freely.

Another phase of the therapeutic value of the mechanical treatment is that these muscles must be exercised. When should this treatment be begun? He had not, until this epidemic, had a chance to observe the early cases, but he would say that no irritation should be given to muscles that are still over irritated. In other words, he thought it is very much contra-indicated, when there is any irritation, to give massage or electricity. The limb should be kept at absolute rest, and the more we accomplish that the better. Our mechanical treatment should begin with careful observation to determine the present conditions, and should be directed to the prevention of the deformities due to unequal muscle pull, and we should consider that we are really using an important therapeutic agent in this retention of the limb.

Dr. Snow said that in listening to the discussion, it seemed to him that the tendency was to consider the question too much from the standpoint of peripheral treatment when the lesion is central. His own observations had been along the line of treating the central lesion, at the same time observing all the other principles of treatment as to keeping up the stimulation of the muscles which were not in a state of excitation, overcoming the contraction and applying measures to the muscles that would tend to keep up as far as possible nutrition in them, and at the same time give attention to the central nervous trouble.

We come to consider, he said, the lesion of atrophy and paralysis as arising from an affection of the central nervous system in the cord. If these nerves are partially destroyed, either from a toxic or a degenerative process, the first indication is to remove the process locally. His own experience in these cases had been from a different standpoint than that considered by any of the gentlemen who spoke.

To explain the method that he used would be very difficult to those who are not familiar with the static current. He felt that anyone would appreciate the fact that a high division of a high-tension current directly over an inflammatory area is capable of restoring tone to vessels, and at the same time forcing elimination of toxic materials and relieving pressure. Take, for example, a similar condition in another part of the body. If you have a congested ankle with a deep-seated inflammatory process from sprain, and by any means you can soften the mass throughout, you will demonstrate the principle of local stasis in relieving local congestion. We accomplish the same thing in the spinal cord. He would not advise the administration of a treatment of that sort in the acute stage. He advised in that stage the use of dry heat and hot baths. With dry heat you may use temperatures of 300° in a body apparatus, and the dry heat produces more diaphoresis and more elimination of toxines than you can get in a wet bath, or this may be done in the house by the use of bottles filled with boiling water and the patient placed in blankets.

The treatment by the static current is unique in this respect, that if you apply to the spine a piece of metal extending over the corresponding regions indicated by the paralyzed limbs, and use what we call the static way current, the current is capable of producing deep contractions and vibrations through these tissues, and it is his custom even in young children not to be too careful about the strength of the current, because the current is no more harmful than a shower bath. He uses in children a spark gap with .8 plate static machine. That amount of current applied over the abdomen of an adult man will throw every muscle of the abdominal cavity and the contents in mechanical vibration. It would seem that the application of a current of that sort would be fraught with some risk, but it is not. The youngsters thrive under the treatment and gain in body weight, and the improvement continues in cases which have come under observation in the ninth week. The effect of the treatment is to immediately institute improvement and the improvement is progressive.

There is no method which is so capable of improving nutrition as the skilful employment of vibration. It is much more energetic than any massage that can be applied, because it can be done in less time and accomplished with more energy, whereas the tedious practice of massage, taking more time, is apt to be neglected.

Contractures may be relieved by this method. He not only vibrates the muscle, but he also vibrates the belly of the muscle, as he does in the treatment of locomotor ataxia. He believes that in the use of that current, we have the greatest means of obtaining three results: the lessening of local congestion, the increased activity of the cell structures and their resumption of function, and the increased elimination of any foreign materials that have been lodged in the tissues.

Dr. J. F. Terriberry said that a great many points had been raised in this discussion. The possible means and channel by which the infection, or whatever it is, gains entrance, is a very important matter. In 1905 and 1906 there was in Norway an epidemic in which 1,074 cases were recorded; 19 of these cases died, and they were studied by Harbitz and Scheel, of the Christiania Pathological Institute. Sections were made of the nervous system complete, the cord, the isthmus and the brain, and these observers say that in the lightest cases recorded, that died from some other cause than infantile paralysis, the whole nervous tract was often found involved, not only the spinal cord, but the isthmus and portions of the brain, and they state that the spinal meninges showed changes under the microscope that did not appear at all to the naked eye. They further say that the trouble is not confined to the anterior part of the cord, but that the greater part of the cord seems to be involved, and so general is the involvement that they have thought the name anterior poliomyelitis was rather a poor one for this disease.

The speaker said he believed that the conviction of these men is, that the germ or infection enters through the alimentary canal. They are of the opinion that it is not a toxine that does the mischief in the nervous system, a toxine absorbed from the alimentary canal reaching this system through the blood, but that the germ is in the cord and brain itself and probably does the mischief directly. If it be true that the germ reaches the nervous axis, then our eliminative treatment is possibly not the treatment that we should expect the greatest good from.

The fact that a progressive degeneration of the anterior horn cells followed an attack of infantile paralysis rarely, an example of which recently occurred in one of his cases, a boy of three years, with widespread paralysis of all extremities and some of the abdominal muscles, that occurred fourteen months ago and caused the death of the child of respiratory paralysis recently, makes it highly important that these nerve cells be kept from doing too much work, and with that end in view it seems absolutely necessary to put the spinal column and cord at rest as much as possible, and he was in favor of putting these children on what is known as the Bradford bed and keeping the spinal column perfectly quiet for from two months to one year. That does not mean that the weakened muscles should be neglected. He believed that the proper time to interfere in their behalf is when the tenderness has left the muscles, and this varies greatly in the individual cases from a few days to a month or longer after the onset of the paralysis.

As to what to do for the weakened muscles, he knew nothing better than passing the galvanic current, slowly interrupted, through the limb daily for a quarter of a minute, placing the cathode on the spine, the anode at the distal part of the limb, using a current sufficiently strong to move all the muscles included between the poles. Where this is impracticable massaging the muscles twice daily is advised. His plan has been if a limb is paralyzed to have the masseur grasp the leg or arm with both hands, alternately squeezing toward the body, so as to assist retarded circulation in the limb and the removal of waste.

The speaker said he would mention one case he had seen that had entirely recovered. He has had under observation for two years a sporadic cretin. About a month ago that child was quite well; the father said the little thing got thirsty at night, and he gave it a half glass of very cold milk. Something seemed to go wrong with the little fellow at once, because he said it doubled him up, the bowels thereafter became irregular, the appetite was lost, and he grew rapidly weak generally. Two weeks afterward, while attempting to reach up to strike a boy in play, the arm dropped. He saw the child the following day; he had a little fever, looked ill and his bowels were locked up. He gave it a couple of grains of calomel in divided doses; this had no effect, and he gave it two more grains. That cleaned the bowels thoroughly. The arm grew gradually weaker for three days, then began to mend, and was apparnetly normal at the end of a week. The electrical reactions were normal at that time.

Unfortunately our present knowledge of the cause of this disease is so imperfect that a rational plan of treatment is precluded. The result of the eliminative plan, adopted in the case above mentioned, was so happy as to lead us to hope for similar results in other cases that come to us early in the stage of invasion.

Many of the late disabling manifestations of this disease could be obviated by a constant supervision of these cases for some years by the neurologist, with the co-operation of the orthopædic surgeon.

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Further information on advertising page 27

DECEMBER, 1907.

AIMS OF THE AMERICAN MEDICAL ASSOCIATION.

THE opportunities for usefulness offered to this organization are very great. Above all, its efforts can be employed to the best advantage in furthering what is properly the main aim of medicine—increasing the sum of medical knowledge and its application. This is the field for the efforts of a great organization representing American medicine. This can be made its best line of usefulness. By every known means the power and wealth and influence of this association should be bent to this end.

We have in this country the ability and the enthusiasm to advance the science of medicine beyond human conception. Above all, the workers need encouragement. Rewards for original research, practical compensation for days and nights of work in devising and perfecting means for the prevention and combating of diseases, are the lines of usefulness upon which a wealthy national organization can enter to the greatest profit. The opportunities for advancing medical study and knowledge which are within the reach of an association with an annual income of a quarter of a million of dollars are very great. A reward of $5,000 or $10,000 and the medal of honor of the Association for the most useful contribution upon means for preventing the spread of tuberculosis, or the prevention of pneumonia, or the treatment of pneumonia, or new knowledge of cancer which will be of aid in its prevention or treatment, or the prevention and treatment of arteriosclerosis, or the prevention and cure of deafness, or blindness, or the prevention of eclampsia, or the cause and prevention of scarlet fever, or the prevention and treatment of typhoid—such work as this would add luster and a splendid degree of usefulness to a national society. There are still diseases of as much importance as smallpox for which vaccines are to be discovered.

Compared with efforts to increase such real medical knowledge, how poor an employment of the energies of a great society are attacks upon certain combinations of drugs and ignorance which unenlightenment supports! How in importance beside this must dwindle the relentless voice of central authority, urging all into line, subjecting all to an autocratic government and creating animosities on account of honest differences of opinion or on account of a few miserable drugs which have little or no relation to the cure of diseases and which are destined to pass rapidly into oblivion and be forgotten!

Let the main issue be not beclouded with pettiness and politics; the greatest service that a society which hopes to represent the medical thought of a nation can perform is the service of increasing scientific and practical knowledge. This is the work which should have first place; and we need have no hesitancy in predicting that it will be along these lines that the great national organization will exert its energies when it comes under the inspiration of the appreciation of the real and vital office of organized medicine.

SUFFOLK COUNTY MEDICAL SOCIETY.

THE annual meeting of this society was held at Riverhead, N. Y., Thursday, October 31, 1907. The Suffolk County Medical Society was founded on July 22, 1806, and celebrated its centennial at Greenport on October 13, 1906, by a joint meeting with the Queens-Nassau Medical Society, under the auspices of the Associated Physicians of Long Island. It was one of at least twenty medical societies which were organized in 1806 under a law passed by the Legislature on April 4, 1806, authorizing the medical practitioners of each county to form themselves into a society for the purpose of examining and licensing aspirants to the medical calling. Its chief object has ever been the promotion of scientific medicine. Its members are necessarily members of the Medical Society of the State of New York and are eligible to election in the Associated Physicians of Long Island. Its membership is open to any practitioner of medicine residing in Suffolk County, and over 90 per cent. of the physicians have availed themselves of its advantages. Its meetings are held on the last Thursday of April and of October.

This society, during the past year, has accomplished a great deal; it was especially active in defeating the optometry bill which was vetoed by Governor Hughes; it is said that it did more active work than even the Legislative Committee of the State Society. The society has invited several physicians who have graduated from homœopathic schools to put aside sectarianism and become members of the County Society; this invitation has been accepted by a number, and the entire medical profession of Suffolk County is rapidly becoming cemented in this society.

The scientific session included the following papers:

1. "THE VAGARIES OF INFLUENZA." This paper included a report by *Dr. L. S. Baldwin*, of Bellport, on the peculiarities and complications of the influenza epidemics of recent years.

2. "THE RADICAL CURE OF FEMORAL HERNIA IN THE AGED." This paper was read, by invitation, by *Dr. Paul M. Pilcher*, of Brooklyn. He described a simple method of operating for this condition in aged people, under local anesthesia.

3. "A STUDY OF CALCULUS LODGED IN THE URETER." By *Dr. Roland Hazen*, of Brentwood. Dr. Hazen has recently been appointed upon the staff of the Brentwood Sanitarium, and gave a very scholarly presentation of his subject.

There followed reports of interesting cases and presentation of specimens. The meeting was well attended, and was remarkable for the free and interesting discussions of the papers read. The next meeting of the society will be held at Brentwood, L. I.

WILLIAM NATHAN BELCHER.

WEDNESDAY, November 20, 1907, Dr. William Nathan Belcher died of pneumonia at his late residence, 33 South Portland Avenue, Brooklyn. The doctor's illness lasted but three days and was especially virulent from the beginning. He is survived by his widow and one child. Dr. Belcher was a grandson of the late Dr. William Nathan Belcher, and graduated from the Long Island College in 1884; since that time he had been in the practice of medicine in Brooklyn, having been for many years one of the associated physicians of the Long Island College Hospital and, until recently, the attending pathologist to the Methodist Episcopal Hospital. Dr. Belcher had always been active in the various Society meetings, being a member of the Brooklyn Pathological Society, the Medical Society of the County of Kings, the Association of Military Surgeons of the United States, the Associated Physicians of Long Island and the American Medical Association. He was connected professionally with the Long Island College Hospital, St. Christopher's Hospital and Seney Hospital. He will be much missed in the profession and in the community. It is a strange coincidence that his last paper read before the Brooklyn Pathological Society was a study of Sudden Death.

CORRESPONDENCE.

ANGLO-AMERICAN MEDICAL SOCIETY IN BERLIN, GERMANY.

To the Editor of the Long Island Medical Journal.

My dear Doctor:—

There is now in existence in Berlin an association of English-speaking physicians from England, Canada and the United States who have organized for the purpose of mutual assistance to themselves and to furnish information and guidance to all physicians coming to Berlin for the purpose of study. They maintain an index to the various courses with the price of each course and details as to the hours and topics considered, their meetings are held regularly throughout the year on each Saturday afternoon, and at each meeting some eminent medical man, either a visitor to the city or some one of the professors in the University, delivers an address. At the three meetings which I attended, Prof. Vaughan of the University of Michigan and Prof. Schmeiden of Berlin, and Prof. Bier, Von Bergmann's successor, were the three speakers. The addresses, as you see, are of more than ordinary interest.

In addition to these meetings, the association maintains a free reading room for the use of all medical men coming to the city, and this, so far as I can learn, is the only place in Berlin where a strange physician can go to read without the formality of a formal introduction and payment of a fee for the use of the library, even though he merely wishes to consult a single authority.

In this reading room that I have mentioned, there are a number of German and French periodicals and several from England which are contributed by the various publications. There is but one American Medical Journal in the collection, and this is the *Journal of the American Medical Association.* It has occurred to me that if it be possible, a copy of your Journal be regularly sent to the reading room I have mentioned, where it will serve the double purpose of bringing your Journal prominently before visiting physicians to Berlin and at the same time will be greatly appreciated by those who, like myself, have an opportunity of seeing these Journals at home.

Cordially yours,
Henry P. deForest.

Annual Dinner of the Alumni Association of Kings County Hospital was held at the Hamilton Club, Brooklyn, on Wednesday evening, November 20, 1907, at 7 o'clock. The following named gentlemen responded to toasts:

Rev. Dr. S. D. McConnell, formerly of Holy Trinity Church, Brooklyn, now of Maryland: "Long-Distance Friendship."

Dr. D. Bryson Delavan, of Manhattan: "Father Knickerbocker and His Medical Relatives."

Hon. Robert W. Hebbard, Commissioner of Charities: "Public Charities."

Hon. Hermann A. Metz., Comptroller of the City of New York: "The City and the Doctors."

Hon. William J. Carr, Justice of the Supreme Court: "Law and Medicine."

Anterior Poliomyelitis—A joint meeting of the Brooklyn Society for Neurology and the Pediatric Section of the Medical Society of the County of Kings was held on the evening of Wednesday, October 30, 1907, at 8 o'clock, at the Library Building of the Kings County Medical Society. The meeting was arranged with the object of providing an opportunity for a comprehensive presentation and discussion of the disease which has been present in this city for the past few months in an apparently epidemic form. The papers which form this symposium are published in the present number of the JOURNAL.

International Congress of Tuberculosis—The Congress will be held in Washington, D. C., September 21 to October 12, 1908. The American Committee, of which Dr. Lawrence F. Flick, of Philadelphia, is Chairman, asks the aid of all those who are interested in the anti-tuberculosis movement, in order that the coming Congress may merit the honor conferred on our country by the choice of Washington as a meeting-place. Any communications concerning the meeting may be addressed to Dr. John S. Fulton, 810 Colorado Building, Washington, D. C.

Clinical Society of the Jewish Hospital—At its meeting held at the Hospital Building, November 8, 1907, the following cases were presented:

Dr. G. I. Miller: A case of Prostatectomy.

Dr. B. E. Wolfert: A case of Endothelioma of the Pleura, with Obstruction of Thoracic Duct. Remarks by Dr. Joseph Merzbach.

Dr. I. Kruskal: A case of Tuberculous Peritonitis.

Pathological specimens by Dr. S. R. Blatteis.

Brooklyn Pathological Society—The programme of the meeting held November 14, 1907, included a paper by William H. Park, Director of the Research Laboratory of the Health Department, New York City, on "The Bacterial Poisons and the Protective Substances Produced by Them." The toxins were described and the details given for the preparation of bacterial emulsions; also, the effect upon the body of their injection was detailed. The paper was discussed by Dr. Potter, of Manhattan, and Drs. Van Cott and Bristow, of Brooklyn.

New York Academy of Medicine—At the stated meeting on November 21, 1907, there was held a symposium upon the subject of malignant endocarditis.

Medical Society of the County of Kings—New members: Edmund Otto Darbois, 460 Sixtieth Street, Brooklyn; James William Dodd Hancock, 557 Halsey Street, Brooklyn; William Henry Lohman, 1038 Bergen Street, Brooklyn; Alexander Smith Sim, 128 Sands Street, Brooklyn; Alfred Winfield White, 2 Macon Street, Brooklyn; Elliott Isaac Dorn, 4 Broome Street, Brooklyn; Samuel Alexander Glück, 42 Humboldt Street, Brooklyn; Paul Tradelius, 536 Forty-eighth Street, Brooklyn; Benjamin Edgar Wolfort, Jewish Hospital, Brooklyn. Change of address: M. A. Cohn, 1153 Herkimer Street, Brooklyn; J. W. D. Hancock, 557 Halsey Street, Brooklyn; A. G. Horstman, 1241 Hancock Street, Brooklyn; E. O. Kuhr, 156 Schenectady Avenue, Brooklyn; Harry Michaelis, 360 West 51st Street, N. Y. City; DeWitt L. Parker, 178 State Street, Brooklyn; Paul Tradelius, 536 Forty-eighth Street, Brooklyn; Alfred W. White, 2 Macon Street, Brooklyn.

Pepsin and Pancreatin Compounds—The following recommendations have been made by the Council of Pharmacy of the American Medical Association:

"1. That the Council on Pharmacy and Chemistry refuse to approve liquid preparations that are claimed to contain both pepsin and pancreatin.

2. That the medical profession, through the *Journal of the American Medical Association*, be advised of the fallacy of employing such combinations.

3. That the attention of manufacturers be called to the worthlessness of such incompatible liquid preparations of pepsin and pancreatin, and that they be urged to cease offering such products to the profession.

4. That, since the National Formulary has recognized a preparation of this kind under the title *'Elixir Digestivum Compositus,'* the American Pharmaceutical Association be requested to instruct its Committee on the National Formulary *to omit this preparation from the next edition.*"

Dr. Thomas R. French announces the following change of office hours: Week days, 2 to 4 P. M. Sundays, 3 to 5 P. M.

Annual Dinner of the Brooklyn Medical Society was held at the Bushwick Club on the evening of Wednesday, November 20, 1907.

Dinner to Dr. S. C. Blaisdell—On Thursday, October 21, 1907, a number of his associates gave a dinner to Dr. Blaisdell in honor of the completion of a quarter-century of medical work.

Dr. Cushman Day, of Brooklyn, died October 26, 1907, at Boston. He was thirty years of age, a graduate of Tufts Medical School, and for the past two years had been an interne of the Boston City Hospital.

Dr. Carlos Finlay, Chief of the Department of Health and Sanitation of Havana, has been honored for his work in connection with the fight against yellow fever; he has received the medal awarded by the Liverpool School of Tropical Diseases.

Multiple Hospital Appointments—The *Lancet* of October 12 gives the following rule adopted by the Directors of the Bristol Royal Infirmary governing its staff: "No member of the honorary staff shall hold any union or club appointment." "No member of the full staff shall hold any other professional public appointment other than professorship or lectureship, at any university, college or school." "No member of the assistant staff shall hold any other general hospital appointment nor more than one special hospital appointment." The *Medical Record*, in commenting upon this, notes the fact that the President of the Infirmary, Sir George White, who formulated the rule, is connected in a principal capacity with several large business enterprises, as well as various institutions, and seeks to learn why a distinction is made between professional men and laymen.

New York Eye and Ear Infirmary—Dr. Jerome B. Thomas will hold his classes in clinical ophthalmology every Tuesday, Thursday and Saturday, from 3 to 4 P. M.

PROGRESS IN OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

By William C. Braislin, M.D.

Skiography in the Diagnosis of Frontal Sinusitis. Dr. W. A. Chisholm (*Annals of Otology, Rhinology and Laryngology,* xv, 1906, pp. 979-1008) studied the shadows produced on the X-ray plate by different fluids—pus, blood, and others—outside the body. Experiments were employed for determining the comparative intensity of shadows cast by dry and moist mucous membranes and other substances. Sufficient experience was thus obtained to enable a differential diagnosis between a frontal sinus that contained fluid, and one that did not, in the same subject. Several practical clinical diagnoses were reported thus made. It does not appear to give results altogether satisfactory in cases where both sinuses are diseased.

Treatment of Tertiary Syphilis of the Larynx. Sir Felix Semon, in *Annals of Otology, Rhinology and Laryngology,* xv, 1906, pp. 201-217, relates the history of several cases of tertiary lesions of the larynx and trachea. In a case of pronounced symptoms of obstruction to respiration the appearance was that of early laryngeal tuberculosis with pseudo-edema of the epiglottis and arytenoids. The swelling was enormous, but the color was of a more dusky hue than that of tuberculosis. Mucus patches later developed. In the hands of this author the inunction treatment has given the best results in syphilitic disorders of the upper air passages. Yet this method occasionally fails, and no one method should be employed to an extreme because of preconceived ideas or previous experiences.

Diagnosis of Labyrinthine Suppuration: The Value of von Stein's Symptom. W. P. Eagleton, in the *Arch. Otology,* xv, 1906, presents the results of his observations on seventeen consecutive cases operated on for chronic middle-ear suppuration. Of these, seven were found to have fistulæ leading into the labyrinth, two of which had disease of the cochlea and semi-circular canals, the remaining five being of the semi-circular canals alone. Von Stein's symptom was present in five of these cases, and, had it been sought, would probably have been found in the other two. A brief résumé of its significance is herewith given. In patients suffering from labyrinthine suppuration there is a peculiar inability to execute certain delicate co-ordinative movements. Thus, with the feet placed together, especially when the eyes are closed, such patients cannot repeatedly jump with the degree of assurance of a normal person, but are compelled to catch themselves, after one or two jumps, by throwing one foot out. This inability may be so pronounced that they cannot jump even with the eyes open. When tested on the goniometer they also show inability to maintain the erect posture at a very much more diminished plane of inclination than normally. The reporter found this symptom valuable, as regards the jumping tests, in determining chronic non-suppurative aural disease in which the labyrinth has become affected, and *very* valuable in determining labyrinthine suppurations of the semi-circular canals, and, in such, may be the *only* symptom of the condition. The symptom is more difficult to demonstrate in persons past middle life, for these, while they may jump slowly, but accurately, for a few feet, soon tire naturally, and so lose the accuracy of the movements. The symptom is probably more pronounced at first, and, as suppuration goes on, the patient gradually regains some of the lost power. The symptom persists, in some cases, after the draining of the labyrinth, but disappears in others.

Indications for Opening a Purulent Labyrinth. Von Hinsberg, in *Arch. Otology,* reviews the knowledge of this subject and the views of various authors as to the additional risk or safety of opening the labyrinth. The author believes that it is always indicated when either the functional examination discloses symptoms of irritation or a defect of the vestibular apparatus, or when, on exposing the middle-ear by operation, fistulæ or extensive disease of the labyrinth can be determined. If the functional examination points to circumscribed disease of the semi-circular canals, and if, at operation, labyrinthine fistulæ cannot be found, he waits, and operates secondarily if the symptoms of irritation which were present before the operation do not quickly disappear. Further, the indication that an endocranial complication is present favors the opening of the diseased labyrinth. Symptoms pointing to the extension of an encapsulated suppuration are vertigo, nystagmus, and then diminution of the hearing which was present before operation.

Diagnosis and Treatment of Cancer of the Larynx. Dr. John N. MacKenzie, in *Annals of Otology, Rhinology and Laryngology*, xv, 1906, pp. 61-72, insists strongly on the application of the naked-eye method of diagnosis in malignant tumors of the larynx. Every resource and refinement of clinical diagnosis, including the exclusion of syphilis by the iodides and tuberculosis by tuberculin, should be resorted to before an appeal to the microscope is made. By following the lead of the general surgeon, with the information obtained from the naked eye, the microscopic appearance of the freshly cut surface of the neoplasm as a guide, there will be less and less need of appeal to the pathologist. While the frozen section of the tumor undoubtedly holds its own as a most valuable means of diagnosis, still it is often misleading and more confusing than the microscopic image of the cut surface.

The objections to the indiscriminate removal of tissue from the larynx for examination are that it subjects the patient to the danger of autoinfection at the point of incision, and to metastasis elsewhere; it stimulates the local growth of the cancer, and the method itself is often inconclusive, misleading and sometimes practically impossible.

Removal of cancer of the larynx by the endolaryngeal method should never come within the range of serious consideration. In practically all fatal cases of larynx cancer, death is due to metastasis. In neighboring organs (the neck and mouth), metastasis takes place with great certainty, and at an early date. It is a serious question whether, in the majority of cases at least, we accomplish any lasting good by any operation short of complete excision of the larynx and the neighboring lymphatic glands.

Purulent Meningitis After Mastoid Operation. Held and Kopetsky report a case (*Arch. Otology*, xxxv, 1906, p. 531) which had been previously operated on for mastoiditis of the right ear, later had scarlet fever, and was afterwards operated on for neurotic suppuration of the left ear. At the end of eight weeks from time of last operation the ear was not yet free from suppuration, but the patient suddenly became restless and irritable, was feverish and vomited, gradually developed retraction of the head, the pupils became dilated, the right eye deviated slightly outward. Examination by spinal puncture of the spinal fluid showed pus and a large quantity of extracellular diplococci. Stupor, somnolence and continued temperature elevation completed the diagnosis of meningitis. At the expiration of twenty-four hours of complete unconsciousness on the part of the patient, operation was decided upon to clear the wound of septic material. The dura was exposed, then incised, allowing the exit of one to two drams of fluid. The wound was flushed with very hot saline frequently during the operation, and a gauze drain introduced between the brain base and the dura. Two days later the left ventricle was entered with a Quincke needle, and lumbar puncture was performed as a therapeutic measure, 40 cc. of a grayish-white turbid fluid being withdrawn. This was twice repeated at intervals of two days each. Improvement began and continued; the first dressing was done nine days after operation. The authors hold that the methods of treatment accomplished the diagnosis, and that the results obtained from lumbar puncture influenced the prognosis, and that the accumulation of purulent exudate in the arachnoidal spaces was combated by the surgical measures, including the employment of lumbar puncture.

TRANSACTIONS

OF THE

BROOKLYN MEDICAL SOCIETY

The 126th Regular Meeting, Held October 18, 1907.

The President, Dr. Hugh E. Rogers, in the Chair.

The following were admitted to membership:

Robert I. Ullrick, M.D., 633 Willoughby Avenue. L. I. C. H., 1904.

Abraham Mors, M.D., 188 Bedford Avenue. Cornell, 1903.

The following were admitted to membership:

Francis I. Doyle, M.D., 81 Hull Street. L. I. C. H., 1902.

Harold D. Brewster, M.D., 165 Patchen Avenue. L. I. C. H., 1898.

It was decided to hold the annual dinner in November, the exact date and place to be determined by the committee, consisting of Drs. Bell, Hettesheimer, I. C. Kennedy, Scott, V. Barber, Louria, Droge, Brader, and W. H. Rankin.

Clinical Section.

I. C. Kennedy, M.D., *Chairman.*

SUTURE OF THE LATERAL SINUS.

Dr. S. C. Blaisdell reported a case of suturing a right lateral cerebral sinus. It was a simple fracture of skull in right occipital region, the torn wall of the lateral sinus being the cause of hemorrhage. The convexity of the sinus is toward and lies in a canal in the skull, being flat toward the brain. The stitch used for suturing was of hour-glass shape.

Dr. I. C. Kennedy had read of one case in which a stitch was taken, and another where clamps were put on for two days.

CHLORATE OF POTASH POISONING.

Dr. O. L. Mulot gave the history of a case. A child had taken about an ounce in tablet form in a day and became unconscious, with cold extremities, shallow breathing, etc. Remedies administered were digitalis 1-120 gr., hot baths, and enemata; but about one hour after seeing the case the child died. *Witthaus* reports eighty-seven cases, of which seventy-six were fatal. The red cells break down, and urine is suppressed, death probably being due to renal changes.

Dr. I. W. Ingalls reported a mild case which showed albuminous urine.

Dr. S. C. Baisdelll saw one case which was saved by emptying the bladder.

RUPTURED AORTIC ANEURISM.

Dr. John Scannell presented a specimen which gave typical symptoms. The X-ray showed pulsations, and the pulse on both sides of the body was the same.

ANTERIOR POLIOMYELITIS.

Dr. E. J. McEntee gave a report of some cases. Two cases were shown with paralysis of the lower limbs, treated by strychnine and electricity. One of the patients can walk but the other cannot. Conclusions of Buzzard, of the United Kingdoms Neurological Society, were that the toxins affected particularly the ganglion cells, there being no special affinity for the nerve cells. Whitman, of Stockholm, thinks it is an infiltrating disseminated myelitis, in which the cervical and lumbar enlargements are the main seat. The changes are the same as in Laundry's paralysis and in rabies, and the mode of infection is lymphogenous. The N. Y. Neurological Society has appointed a commission to get reports from heads of dispensaries, to try to prove the infectious character of the disease, if possible.

Dr. J. D. Sullivan reported a case in an infant thirteen months old which was relieved by putting a splint upon the spine, as every motion of the spine caused pain.

Dr. H. E. McChesney said care should be taken to avoid stretching the muscles; put the limb in as natural a position as possible. Massage is very important to restore the circulation, and galvanism is to be used as long as contractions are produced.

Dr. O. L. Mulot reported that the French surgeons produce the same symptoms from staphylococci and streptococci.

TRANSACTIONS

OF THE

BROOKLYN SURGICAL SOCIETY.

Regular Meeting, June 10, 1907.

The President, O. A. Gordon, M.D., in the Chair.

ON THE TREATMENT OF FRACTURE OF THE PATELLA.

Dr. Lewis S. Pilcher presented a series of skiagraphs showing results obtained in cases of fracture of the patella. He accompanied the demonstrations with remarks based upon thirty-eight cases of this injury treated by him, of which he had notes. Of these, in twenty-one instances he had wired the fragments together, and in seventeen instances he had relied upon chromic gut sutures applied to the periosteum and capsule, after clearing the fractured surface of the apron of aponeurosis and blood clot universally present.

His worst results had occurred in men who had previously been the subject of gonorrheal arthritis of the injured joints, of which there were two cases. As a result of the traumatism, both of the injury and of the operative interference, there was awakened into activity a latent gonorrheal infection. In one case it did not seem to be necessary to open the joint to attempt to drain it, and ultimate subsidence of the infection was secured, and the man was discharged finally with a very marked degree of limitation of motion in his joint, with a considerably swollen joint and with a marked tendency to lymphœdema of the leg below.

The second case was in a very markedly neurotic individual. The local infection was accompanied by an extraordinary wild delirium without any high temperature, but with a condition of mental excitement that of itself, by reason of the excitation which seemed to be inevitable in connection with it, threatened his life. Ultimately, however, everything quieted down. Meanwhile, supposing that his general condition was due to the local infection, the joint was freely opened and drained, and drainage was continued for some time. The discharges were found to have the characteristic diplococcus. He was ultimately discharged with a stiff joint. A skiagraph of this joint, taken five years after the injury, was presented.

The conditions which are present in this joint are seen well represented, and the firm bony union is evident. The cementing together of the patella at the point of contact with the anterior surface of the articular expansion of the femur is well seen here, and we can appreciate the reason why there is a permanent anchylosis in this case. In these two cases chromic gut sutures were used.

Dr. Pilcher first presented two young men, in one of whom a fractured patella had been wired, and in the other a fractured patella had been sutured by chromic gut. In both the *restitutio ad integrum*, both as regards contour, tissue and function, had been perfect. In the wired case the man was up and around on crutches on the twenty-first day, the plaster dressings were removed on the thirtieth day, and on the thirty-second day he was discharged. On the fifty-first day he returned for examination, when the knee could be flexed to 45°, and now he has perfect function.

In the second case. Eighteen months since his patella was fractured and sutured by chromic gut. He made a rapid and satisfactory recovery, and was discharged on the thirty-third day. Six weeks after he was unfortunate enough to have a box fall on the bent knee and broke it again. It was resutured, and the result was shown in a skiagraph. Though there is a slight irregularity of apposition, as shown by the X-ray, nevertheless there is nothing that can be felt, and the function of the joint is apparently perfect.

A third skiagraph presented was one of his later cases, which had been exceedingly satisfactory in the functional results. The patient was a young woman, 26 years old, operated on December, 1904. The fragments were wired together. She was discharged on the thirty-fifth day, at which time the knee was somewhat stiff, there was no limitation of motion, and one month after leaving the hospital she reported that the knee was as good as before the fracture. She could go up and down stairs as well as ever. Flexion is now normal, and the patella is freely movable.

A fourth skiagraph showed another wired case. In this case there is considerable limitation of motion. While it does not interfere with the usefulness of the joint, the ability to flex the joint is limited to about half the normal extent, and the reason why is shown by an apparent osteophytic development on the underneath side of the united patella, which locks against the articular surface of the femur; this is quite visible on close inspection.

A fifth picture showed two different healed fractures at two different levels in the same bone. One was the result of an injury received seven years ago. A chromic gut suture was employed. He was let up on the twenty-sixth day, and on the thirty-sixth day was discharged cured. After leaving the hospital he states that his leg was as good as ever. Three years later, while playing football, he broke the same knee cap again, and was treated in a similar manner by Dr. Brinsmade at the Long Island College Hospital. Notwithstanding these consecutive injuries he still has a freely movable, apparently perfect, knee joint. The flexion is normal, and there is firm union in the patella. The X-ray shows an absolutely perfect repair, and yet the evidences of both fractures still can be detected.

In the sixth picture, a slight irregularity of coaptation of the two parts of the patella may be seen, and yet the man is able to flex to 90°, has firm union, the patella is freely movable; he goes up and down stairs freely, but is somewhat deliberate in going down stairs, as if he lacked full power over the knee joint.

Two companion skiagraphs showed results obtained after fractures of both patellæ in the same man. One side was treated non-operatively. A wide separation of the fragments has remained, but with a fair functional result. The other was treated by wiring February, 1906. He was discharged on the 27th day, and began at once to work. Now flexion is perfect; patella freely movable, union firm, with a function of the knee better than on the non-operated side. Changes of the weather give a certain amount of stiffness about both joints, but less so on the operated than on the non-operated side. He is able to go up and down stairs well.

The result of the speaker's experience had been to make him feel that there was no special advantage in the substituting of an absorbable suture for a non-absorbable suture; that the possibilities of joint infection, of joint disturbance, were quite as much in the one case as in the other. Personally, it seemed to him, that his experience had shown that the possibilities of perfect function were as good in the wired cases as in those in which the absorbent material had been used. He thought also that there was in addition a greater probability of securing an absolute coaptation and perfection of reformation of the natural relations of the parts by the fixation which the wire gave, which we could not depend upon in the use of a flexible and rapidly disappearing absorbable material. His conclusion was that inasmuch as the technic for the application of the wire is not exceedingly difficult, is easily mastered, and can be carried through with a fair certainty of perfection, the absolute condemnation of the method from a scientific standpoint was hardly tenable. He had presented this series of cases in order that the foundation for his belief at least might be known to all.

RUPTURE OF KIDNEY.

Dr. L. W. Pearson reported the case of a man who in the evening of November 1, 1906, was struck by a heavy rope in the left lumbar region. He was knocked down by the violence of the blow, and had to be carried home. The speaker saw him about three hours after the accident. There was a contusion of the left side of the body extending from the vertebra over the lowest ribs to near the descending colon. The muscles in this region were rigid and the parts very tender. He complained of considerable pain. The urine was negative. No fracture could be found. He vomited, and was given morphine hypodermically. He was put to bed and hot applications applied to the seat of injury. Later the urine contained blood, although it cleared the following morning. The vomiting stopped. The muscular rigidity was very marked over the seat of injury. The hemorrhage consequent upon the rupture had evidently ceased. He was ordered to remain in bed and treated expectantly. November 4th hot antiphlogistine was applied to the injured side by a neighbor, and two hours after, the urine contained blood in abundance. The antiphlogistine was removed and cold applied. The speaker attributed the renewed hemorrhage to the hot application. November 5th the urine still contained much blood. He was put upon ergot, and November 6th the bleeding was much less. November 8th the urine was clear. He was kept in bed two weeks. His health has since been good.

Three weeks previous to this accident the speaker saw in consultation another case of rupture of kidney, which resulted fatally. Operation was rejected.

FRACTURE OF PATELLA SUTURING WITH KANGAROO TENDON.

Dr. L. W. Pearson presented the following case:

Mr. F., age 37 years, sustained a fracture of the right patella July 2, 1906. It was caused by muscular action. He neither fell, nor was aware of any serious occurrence until he attempted to walk, and then he fell. Not appreciating the condition, he arose, attempted to walk, and fell a second time, whereupon he was carried home. I saw him the evening of that day. He was in bed; the right knee was slightly swollen, but was neither contused nor ecchymotic. The patella was fractured transversely; the upper fragment was drawn upwards about ¾ inch, permitting a finger to be easily interposed between it and the lower fragment. The knee and the parts adjacent thereto were shaved, made surgically aseptic, and a wet bichloride dressing applied. A posterior splint immobilized the limb. The effusion into the joint was practically dissipated by the 10th of July, on which day we operated. An incision was made transversely above the patella; a longitudinal incision on each side joining it produced a flap, which being turned down, exposed the knee, and included without opening the prepatellar bursa. The expansion of fibrous tissues over the patella was divided, exposing the fracture. The fragments, though apart, were easily apposed. Fragments of synovial membrane hung between the divided bone, forcing us to reflect if union could occur under such disadvantages, and comforting us with a sense of justification for operating. These invading structures were cut away; a few clots were found and removed. The joint cavity was not irrigated. With an ordinary shoemaker's awl two oblique channels were formed in each fragment of injured bone, through which strands of kangaroo tendon were drawn, and tied, holding the fractured surfaces in apposition. The synovial membrane and capsular ligament were united with catgut, and the cutaneous structures brought together by a linen, subcuticular suture. No drainage was employed. The wound was encased in liberal dressings, and the limb immobilized in plaster paris. The convalescence was uneventful.

CARCINOMA OF TONGUE.

Dr. E. A. Parker presented a man, 32, whose father had died of cancer of the stomach. February 9, 1905, he noticed a small lump about the middle of the left outer border of the tongue. He was referred to the speaker by Dr. Leiter. March 16th a section was removed, under cocaine anesthesia, for microscopic examination. Dr. Deely reported carcinoma. March 31st the left submaxillary, sub-mental and cervical glands were removed. April 11th the left half of the tongue was excised. April 18, 1905, discharged from hospital.

CARCINOMA OF UTERUS.

Dr. E. A. Parker reported two cases, as follows:

Case 1. H. C., 30, married nine years, four children, three miscarriages. For three months has had backache, painful and frequent micturition, occasional foul smelling discharge from the vagina. October 7, 1902, trachelorrhaphy and perineorrhaphy. Dr. Deeley reported carcinoma of the cervix October 24, 1902; abdominal hysterectomy at St. Mary's Hospital, May, 1907; no recurrence.

Case 2. A. R., 31, two children, sister of first case. April 5, 1906, trachelorrhaphy. Microscopic examination negative. July, 1905, menstruation from two to four-week type. September, attacks of dull pain in the pelvis, accompanied by bloody discharge, loss of weight and strength. November 7, 1905, abdominal hysterectomy. November 28th, discharged from St. Mary's Hospital. Microscopic examination by Dr. Deeley showed carcinoma of the body of the uterus. May 28, 1907, no recurrence.

To early radical operation the present absence of recurrence in these three patients is attributed.

TWO CASES OF STREPTOCOCCUS SEPTICAEMIA TREATED BY BACTERIAL VACCINES AFTER THE METHOD OF WRIGHT.

A paper with the above title was read by Dr. A. T. Bristow.

Discussion.

Dr. N. B. Potter said that he was deeply indebted to Dr. Bristow for the privilege of helping in these cases.

This subject of the therapeutic use of bacterial vaccine, the speaker said, was not very new, but this application in the human body was rather new. In discussing Dr. Bristow's very clear and very judicious paper, he would like to say that Case 1 was a streptococcic localized infection, that the blood culture, which was made at the time, was negative. He did not think any one could have observed that patient at the time she was first inoculated, and then subsequently, without being very much struck by the fact that something had happened which was helpful, and the only thing which was done was the employment of the vaccine.

The source of the vaccine was from a patient in his last winter's service at the French Hospital, a man who entered the hospital with a similar history to this patient of Dr. Bristow's, who developed a large, brawny abscess about the shoulder, and who also had an infection of the right knee joint, which, upon tapping, proved to be due to a streptococcus. This abscess was opened, and some glands in the neck broke down; both contained the same streptococcus, and at another time the same streptococcus was found in the blood. That was a case then of streptococcus septicæmia, a man in a very low condition with jaundice, sweats, high fever, enlarged spleen, a number of wheals appearing upon his body; at different times, delirium, part of the time somnolence, involuntary micturition and defecation; in brief, a picture of an extremely sick septicæmia. The reason he mentioned the case at so much length was this —this was the source of the vaccine in both Dr. Bristow's patients. In addition, the case teaches a little lesson, in that he had followed this case very assiduously with the idea of inoculating him with the vaccine. Dr. Krumwede, assistant pathologist of the French Hospital, was unable to estimate this man's opsonic index in the first days of his residence at the hospital, because his streptococci were apparently so virulent that they would not phagocyte, and there was, therefore, a little delay about determining his index. He succeeded in making the organisms phagocyte by cultivation, and his opsonic index was found to be about normal.

The speaker said he then started with the idea of getting a vaccine ready, and by the time the vaccine was prepared, the patient was a little bit better, so that he delayed inoculation, because he thought it was not quite fair to the patient, nor to the observation, which he hoped to make a scientific one. With this delay the patient got a little better the next day, and finally got entirely well without any treatment beyond quinine, etc. That teaches, Dr. Potter stated, that, as you all know, some of these cases of septicæmia do get well without vaccine. In mentioning this case he said he did not want to detract at all from the value of the two observations cited by Dr. Bristow, because he thought both showed that the vaccine did help them to get well, but we must remember that other things, as well as vaccines, will help, and we have got to be guarded in our conclusions, as Dr. Bristow has so thoroughly pointed out. It is only a series of such observations that will tell the truth. The later opsonic indices were all normal, so that there was no particular indication, following Wright's theories, for inoculating this case.

As to the second case, which Dr. Bristow showed to the speaker on Decoration Day, he did not think it made much difference what was done, that he thought the patient was moribund. He tried to arouse her; he was not able to make her stick out her tongue, open her eyes or respond in any sense. She was quite comatose; she had a marked retraction of the head, with an unyielding neck, and with the evidences in the blood of a streptococcus septicæmia, which Dr. Van Cott had found a few days previously; it seemed to him it was almost a hopeless proposition to inoculate such a patient. Forty-eight hours had elapsed between the time of the last dose of the antistreptococcus serum and the time of the first inoculation of the direct bacterial vaccination. The vaccine was from the same French Hospital patient. In selecting a forty-eight hour interval after the use of the antistreptococcus serum, he thought it was rather wise to make that interval, so that the observation would be of a little more value, and he did not believe anybody was more astonished about the outcome of the case than he, when Dr. Bristow told him the woman was better, and when he saw her it was really difficult to believe that it was the same patient.

This, Dr. Potter said, was the second case that he had seen recorded in which a septicæmia, that is a case in which the organisms were cultivated from the blood, had been apparently cured by bacterial vaccines, preceded by antistreptococcus serum.

As far as this new method of treatment is concerned, Dr. Potter said, we owe to Wright a very great debt of gratitude in calling our attention to the use of bacterial vaccines, and in making probably a very much wider use of them in the treatment of infectious diseases. He thought that debt is universally acknowledged, and he did not think we can possibly belittle it. He thought we also owe to Wright a very great debt for his explanation of this method, and for the very ingenious technic in estimating the opsonic power of the blood. It certainly assists us materially in understanding the application of bacterial vaccines. In saying that this technic is not always a very accurate technic, he thought we have not detracted very much from Wright's great work. It is not a very accurate method. He thought the consensus of opinion at Washington and Atlantic City showed that the margin of error is considerable. It is a method of technic extremely difficult, most elaborate, and in point of time most exigent, and, of course, very expensive. These are its main disadvantages; in addition to which he thought any one, who has followed the method of vaccination for a certain length of time, unconsciously gets on without using that method. For example, a patient whom Dr. Bristow was kind enough to send to him at his office a few days ago, with a chronic staphylococcus infection, he inoculated the day she appeared at his office from his knowledge of other cases he had seen. He took an opsonic index and found he had inoculated in accordance with the figures obtained. Generally speaking, for certain cases that are like similar cases followed before, the opsonic determination can be neglected, but he did believe that opsonic determinations are useful when a patient does not do well with the ordinary use of the vaccines; again, when working upon a new type of infection; further, when we have an infection in which there are several organisms found, such as the first case of Dr. Bristow's, where there was a streptococcus and a bacillus. The opsonic determination may, and probably would, show us which was the appropriate germ to use for inoculation, and in many other instances, certainly whenever in doubt, an opsonic determination should be resorted to. Dr. Potter thought any one taking up this treatment by bacterial vaccines would better employ opsonic determinations. He had been at it now for two years pretty assiduously, and he did not feel he could neglect them.

As regards his opinion of the value of bacterial vaccines, it was almost too broad a subject to go into. As far as staphylococcus infections were concerned, he had almost uniform success in treating localized infections, such as carbuncle, general furunculosis and several obstinate cases of acne and impetigo. In some of the most obstinate cases of impetigo and acne (staphylococcus infections) he had exceeded the power of the organism to respond, and produced harm. In these chronic cases we must be guarded in our doses, use smaller doses; be guarded in our intervals, inoculate at intervals spread out a little more. Perhaps we cannot expect to accomplish a complete cure. There must come a time when all infections have gotten beyond the use of any treatment, just as in a chronic myocarditis without sufficient muscle fibre to respond to digitalis.

In streptococcus infections, Dr. Bristow's two cases were the most striking ones. In one case of streptococcus meningitis, following an otitis and mastoiditis, after operation he inoculated the same germ that he used in Dr. Bristow's two cases without effect. The patient died. The patient's opsonic index was not influenced. In the other cases he had inoculated, he had not been able to follow the index continuously or accurately enough to make it worth reporting.

In tuberculosis, he believed that the question of the use of tuberculin has been so thoroughly and carefully studied by Trudeau and others, that the use of the corresponding bacterial vaccines is on a perfectly sound basis as a therapeutic agent without any help from opsonic indices, and although he had been following cases of tuberculosis with opsonic determinations, in general he had used Trudeau's very careful rules, and with, he thought, a reasonable amount of success.

Dr. M. Figueira said that it seemed to him that one of the most important points in cases of this kind in regard to conclusions that we may arrive at of the usefulness of the agent employed depends upon a correct diagnosis of the case. Of course, if a case is one of streptococcus infection, the results that we obtain from the vaccine signify a great deal, but we must be sure in every case we have a case of streptococcus infection.

In the first case Dr. Bristow presented, it seemed to him, it did not show evidence enough that the man was suffering from a streptococcus endocarditis. The diagnosis was based on the murmur and on the accentuation of the second sound. We all know these are not signs enough to make a diagnosis of malignant endocarditis. Then again there was a culture of streptococcus from the depth of the wound, and it does not follow that because it happened that there was a wound infected with streptococci, that an accentuation of the second sound and a murmur means malignant endocarditis, so that in this case he did not believe, unless the doctor had some other evidence, that there was a malignant endocarditis, and it seemed unfortunate that all these cases were cases of malignant endocarditis, because we all know that malignant endocarditis does get well under general treatment. He had seen cases get well, and in Delafield's Notes several cases are mentioned that got entirely well under common treatment, so that in cases of this kind that get well after vaccine, there is some doubt whether it was not due to the powers of Nature.

In the second case the patient had symptoms and signs of cerebro-spinal meningitis. Whether that was the case or not the history does not seem to show, as there was no examination of the cerebro-spinal fluid. If there was, and the retraction of the neck and tendency to coma and severe headache seems to point that way, then the meningitis accounts for part of the symptoms supposably due to septic cardiac trouble, and may explain recovery on different grounds. In regard to the recovery of the patients after vaccination, when large doses of serum did not produce any effect, the speaker said he would like to suggest this explanation from the results of the use of tuberculin in cases of tubercular disease: cases of tubercular disease that were treated by large doses of tuberculin did not improve, but the use of minute doses guided by the opsonic indices were beneficial.

Dr. A. T. Bristow, replying to Dr. Figueira, said that the doctor overlooked the fact with regard to the first case, that he stated positively it was not a general infection, and, therefore, his criticism on that case fell to the ground. The hemic murmur and the accentuation of the heart sounds were simply mentioned incidentally to complete the history. A culture was made from the blood, and it was proved, as far as anything can be proved, that there was no general infection, and, therefore. this was not reported as a case of general streptococci infection. Of the second case, it is true, the speaker stated, that this patient had meningeal symptoms, but it is not necessary that every meningitis we have must be the result of a meningococcus infection. We can have tubercular meningitis and meningitis from other causes. In this case the streptococcus was recovered from the blood, and it was a reasonable inference that the evidences of cerebral irritation were due to the same organism; therefore, Dr. Bristow could not see that in that case the criticism that this might have been a meningococcus infection applied.

Dr. Paul Pilcher said that, with regard to the first case of Dr. Bristow's, he did not believe that any such case could be considered as a local infection, even if the organism was not recovered from the blood; there have been many cases which have been observed in which the bacteria were found in the other secretions and yet have not been found in the blood. He believed no case could be so severe as the present case without being a systemic infection, even if the bacteria were not recovered in the blood, and he should consider it a general infection rather than a local.

Dr. A. T. Bristow, in conclusion, said that as a scientific fact we have no right to go any further than we can prove, and one has no right to state as a fact that which cannot or has not been proved, so he reported it as a local infection. In the first case, no organism was recovered from the blood after two separate attempts, but the streptococcus was found in the abscess cavity, and he therefore reported the case as a local affection with a resulting toxæmia.

CYSTOSCOPY AS AN AID TO SURGICAL DIAGNOSIS.

Dr. Paul Pilcher read a paper with the above title and presented a number of different cystoscopes, more especially those of American manfacture and invention. He also presented a new cystoscope of his own invention for catheterization of the ureters in the male and female.

Discussion.

Dr. Robert L. Dickinson, speaking from the gynecological side of the subject, said that we must make a very clear distinction between the easy cases and the difficult cases, as had been stated. The patient must often learn tolerance of the speculum, as the pharynx tolerates the laryngeal mirror, before one can get a clear view of the bladder. Take, he said, a case in the hospital which is brought into the operation room for examination. That woman is so much alarmed that she has a spasm of the bladder and a rigid abdominal wall, and is under the most unfavorable circumstances for satisfactory inspection. Let her have one examination in the office under cocaine, and find that it does not hurt very much, then when she comes again one can study one of the ureteral orifices at that time, and later, on the second or third examination, make a complete and satisfactory inspection; that, he said, perhaps would represent the average history of the average case. There are cases in which the whole thing can be done at a single examination, but there are a very great many who are very nervous and sensitive, where it is impossible to do the whole thing at once.

The man who does a good deal of this work learns what kind of a cystoscope to use, how much to attempt at a single session, which cases are difficult and which are easy. The fat woman presents a difficulty; women with large sized buttocks and with fat pads of the vulva cause considerable difficulty. He knew, however, of no handicap in catheterizing the ureters comparable to that to which Dr. Pilcher had referred, the sharp angle between the urethra and the base of the bladder. You can see the ureters, but when you come to introduce the catheter, it slips along and fails again and again to engage, or if engaged the tip jumps over, because of the flexibility of the smaller sizes. In women one can, with a little care, so adjust a vaginal tampon as to place the bladder wall at a more favorable angle. A standard connection of cable and all cystoscopes should be made, so that while the patient is in the knee-chest position, one may quickly change from one form of cystoscope to another without changing any of the connections, save one.

The speaker said he would object to only one statement that the doctor made. The Kelly cystoscope does not require anesthesia. Dr. Dickinson often uses a smaller size than any Kelly uses, because it is perhaps the least painful, in his experience, of all the cystoscopes. Cystoscopy is of immense value in the diagnosis of obscure pelvic pain, as well as of obscure abdominal pain, kidney and bladder pain. There is many a case of somewhat indefinite or reflex pelvic pain which can be directly traced to a red bladder base, when dysmenorrhea or backache, or some other reflected pains, are the ones to which the patient draws attention. So many a case of hæmaturia, many a case of one-sided kidney pain, turns out to be a one-sided nephritis, and the patient may be saved from an operation. Varicosities at the base of the bladder are the cause of a good deal of bladder ache also.

The speaker said that we have one medicinal agent of great value in this kidney and bladder work, that in his practice has taken the place of silver nitrate entirely, and that is argyrol, and one need not hesitate to use it in 50 per cent. solution. Indeed, passed in with an applicator in chronic cases, if the bladder is emptied, it obviates the use of the cystoscope almost entirely, because with his pipette catheter, the treatment takes but a moment, and it is free from pain and from the obnoxious knee-chest position.

There is a big field for bladder work, Dr. Dickinson said, in the diseases of women. There is a large amount of inflammatory bladder trouble, and the gynecologist of the future will examine the bladder and rectum in all cases of troublesome and obscure pelvic pain.

Dr. Lewis S. Pilcher said that he began his work with the cystoscope fifteen years ago through the kindness of Dr. Warbasse, when he was making his original studies in Vienna, who brought back with him a simple cystoscope. He never got beyond the one simple cystoscope, and he never got very far with that, so that during all these years he has often labored under the disadvantage of an ignorance of the finer points of diagnosis, and the information or the direction of treatment, which might have been obtained from cystoscopic exploration. It had been a source of great satisfaction to him to see Dr. Paul Pilcher take up work in this field, starting with the simple cystoscope of fifteen years ago, and going on to the more elaborate and thorough and systematic study and use of the most improved methods of surgical technic. He had seen some results from it, and he was satisfied that while, as is the case in many of these specialties and special instruments and special fields of investigation, the tendency is to sometimes over elaborate and to exaggerate the importance of minute things, nevertheless there is a great deal in it, and any one who will devote the time to the patient mastery of the methods will be able to give his patients a degree of security and of certainty of therapeutic advantage which otherwise would be unattainable.

TRANSACTIONS

OF THE

BROOKLYN GYNECOLOGICAL SOCIETY

A. A. Hussey, M.D., Editor.

Stated Meeting, October 4, 1907.

The President, R. H. Pomeroy, M.D., in the Chair.

ENDOTHELIOMA OF OVARY

Dr. Charles Jewett presented this specimen and said the woman was about 40 years of age. Examination showed a solid tumor of the abdomen reaching to the umbilicus. A small quantity of cloudy serum was found in the peritoneum. The growth, on histologic examination, proved to be an endothelioma. The speaker said that Dr. C. W. Barrett, of Chicago, in the *Journal of Surgery, Gynecology and Obstetrics* for May, 1907, had written up this subject. He was able to find but five cases of ovarian endothelioma in the American and British literature, while about 75 cases had been reported in other languages.

The growth is a rapid one and prone to recur after removal. Ascites is usually found; indeed, it is very seldom absent. There is a high mortality after operation, owing to recurrence mainly. The histogenesis of the tumor as well as the morphology and arrangement of cells seems to entitle it to classification as a separate tumor from either carcinoma or sarcoma.

EARLY MENOPAUSE

Dr. Charles Jewett spoke of this case brought on apparently by curetting. The woman was never robust. Married six years. Had had two pregnancies, both ending in miscarriage at the second month. The menses were of the normal type till the first miscarriage; then became irregular and too frequent. Two attacks of severe flooding followed the second miscarriage at intervals of several months. The woman was curetted in April, 1905, and the menses ceased from that date. Symptoms of the menopause began three months later.

SEPSIS OCCURRING AFTER GALVANO-CAUTERY OPERATION

Dr. W. J. Corcoran said that he wished to report the only death he had ever heard of from sepsis following an operation on the cervix uteri by galvano-cautery.

The lady was 27 years old, married, one child. When he was called to see her the principal trouble seemed to be stomach irritability, but after questioning her he found most of the trouble was in the pelvis. On making an examination he found a large, heavy uterus with a cervix torn and split in every direction, and he advised immediate transfer to the hospital. On October 13th she was given an anesthetic. The cervix was found to be soft and lacerated and the uterus was curetted, the scrapings being sent to the pathologist. The return from the pathologist was negative. The cervix was large and the mucosa inverted. There were hard nodules all through the cervix and it was split in various directions, none of them very large. He decided that considering the status of the patient (she did not want any more children), the safest thing to do (his diagnosis from clinical experience was carcinoma, although the pathologist was unwilling to confirm it) was to amputate the cervix by high incision as being preferable to repairing. The operation was performed by the cautery, the cervix was pulled down and a high excision made. He removed as much of the uterus as possible. That was on October 20th. The patient went along a normal course until November 2d, the fourteenth day after the operation, when she had a severe hemorrhage, for which the house surgeon promptly packed the vagina, and it was supposed to have controlled it. When he reached the hospital he found her still bleeding very badly, and he found quite sharp and severe hemorrhage coming from one side of the uterus. He put on a hysterectomy clamp which controlled the bleeding, and packed a little gauze around it. She had to have a saline infusion on account of the severe loss of blood. The clamp was taken off 48 hours after and everything went along all right. She left the hospital perfectly well on November 19th, and he referred her back to her family physician for the purpose of keeping the uterine canal open, which is always necessary after a cautery operation, for two or three months. On November 21st she had a severe chill and temperature of 104°. The family physician was sent for. He came, gave her some medicine, and she was apparently better. November 22d patient's right arm became swollen and painful and distinct red swellings were noticed. The same day she began to have pain on both sides of abdomen in the iliac region. She vomited profusely. On November 23d she had another temperature of 104°. She was then sent to the hospital.

As the speaker was sick at the time, Dr. Glynn opened up the abdomen and found a double acute pyosalpinx; evidently acute, as there were no adhesions; both tubes and ovaries were easily removed. Drainage was employed. She died in about a week from general sepsis.

This was the only case of sepsis following a cautery operation that Dr. Corcoran said he knew of. She had had two previous operations under chloroform, and there was no indication in the pelvis of any trouble at either time; no evidence of any increase in the size of the tubes.

The question was, did the sepsis come as a consequence of the cautery operation. His idea was that in doing the operation he injured in some way one of the uterine arteries or one of its branches. In the act of vomiting, straining or defecation, the vessel was ruptured, and she had hemorrhage. It was necessary to use a clamp on the bleeding vessel, and it might not have been absolutely clean, as the case was urgent and work hurried. There was a slight rise of temperature on the same day that the clamp was used, but it soon subsided. Another point he considered was as to what might have happened after she got home. She went home perfectly well after twelve days of uninterrupted convalescence and something might have been contracted at home.

The speaker said he wanted to call attention to that case because the question of when and how to operate in these cases of carcinoma has been much discussed of late, and he did not want to go back on his old opinion as to the advisability of just what operation should be done. There was no positive diagnosis of carcinoma except the one he had made clinically. The microscope said no, but it looked to him as if it was, and he was glad to get in early and do the operation, which he believed to be the best operation which can be done for carcinoma of the cervix, and that is the operation of high excision, *not amputation*, by the cautery. He thought it the one which gives us the best results, and he thought hysterectomy gave us the worst results, as far as disease in the cervix was concerned. Since Byrne's published statistics, he had obtained even better results.

The only trouble with the Byrne operation, the speaker said, is that we are not sure that we have got all of it.

The results that are obtained from the cautery in these operations, where it can be performed, have been so good that it has led him to advocate the new operation, which has been performed by Downes, of Philadelphia, first suggested by Skene, of Brooklyn, which is doing as much as possible below by the cautery, and then using the thermo-cautery clamps from above. The new instruments of Downes, he thought, solve the difficulty. It is a combination of an angiotribe and a thermo-cautery. The severing of the structures by the hot knife after the application of the thermo-cautery angiotribe is the best operation we can do in cases of cancer of the body, where we have to remove the entire uterus and as much of the surrounding structures as possible. The only difficulty we meet is in the separation of the uterus from the bladder. That is the place where you cannot work with the hot knife.

Dr. C. Jewett said that the cautery operation, even though it sealed the lymphatics, might have lighted up a condition in the upper portion of the endometrium not cauterized, through which an infection of the tubes could have taken place by the lymphatics or by direct extension. With the tubes infected, of course the general sepsis was easily explained. The speaker inquired as to how extensive the cautery operation was, whether it involved the whole fundus, and also whether there was a bacterial diagnosis of the character of the pus in the tubes.

With regard to the operation of Byrne. Byrne and Skene had brought credit on Brooklyn by their galvano-caustic work, and this work is still being perpetuated in a modified form. It does not seem rational, however, to expect a cure of cancer of the cervix by the operation which Byrne did. He granted that the length of life was greater under his method of treatment than by the hysterectomy of that time in most cases of cancer, but the objection to it is that the parametrium beyond the field of cautery is invaded, and no matter how thorough the amputation it cannot prevent recurrence of the disease. The operation has been modified by Werder and others, and he thought the cautery method of hysterectomy has some advantage over the knife in cancer of the cervix.

With the Downes operation, in his experience it had been difficult to escape injuring the ureter, and he had abandoned it.

The best operation for cancer of the cervix to-day is that now practiced by Clark. It is chosen only when, after opening the abdomen the parametria and lymph-glands are found not much or not at all involved. For identification the ureters are catheterized or are laid bare throughout their extent. The vessels are tied close to the pelvic wall. All the attachments of the uterus are divided as far out laterally and posteriorly as possible with cautery knife, and the upper portion of the vagina is removed with the uterus. Raw surfaces, except over bladder, ureter and rectum, are then cauterized. The peritoneal flaps are sutured as usual.

Dr. L. G. Baldwin said he wanted to take exception to Dr. Corcoran's solution of the case, or of the whole case as far as the sepsis was concerned. It seemed to him entirely irrational, unreasonable and unjust to put this down as a case of sepsis due in any way to the cautery operation. He did not see how by any possibility the doctor was justified in going back on the previous statements that have been made, that the cautery operation is free from infection.

In the first place, the woman did not get septic until four weeks after the cautery operation was performed, and certainly there was a much more fertile field for the means of infection in the house surgeon's using whatever kind of gauze he could get to pack the vagina. He presumed the house surgeon did not wait very long, and it seemed to him that that undoubtedly was a much more reasonable solution of the sepsis. The fact that she had a rise of temperature almost immediately is not uncommon; indeed, it is the usual history of pus tubes. After the first symptoms of the infection the temperature subsides, and there is not much trouble until you have the leakage, and it seemed to him that that was the most reasonable way to account for the sepsis.

In regard to the hemorrhage, he did not think it was necessary for the doctor to infer that he wounded the uterine artery or its branches. Personally he had two experiences of bleeding in vaginal hysterectomy occurring two weeks after the operation, which was very severe. Where the hemorrhage came from he did not know, but it was very profuse. In these two cases packing was done without great regard to asepsis.

In regard to the cautery operation itself, he could not speak of it, as he had no experience with it.

Dr. W. J. Corcoran said that he did not know whether a bacteriological examination was made after the second operation or not. He did not perform that operation and was not present at it.

In regard to Dr. Baldwin's saying that he felt in any way responsible—he did not. That was the first case of sepsis following the cautery operation in 25 years, and that was the reason why he reported it.

The fundamental rule is where there is a spark of disease, which you can call carcinoma, the whole organ should come out. That is proper and right, but if there is only a suspicion, as in this case, with a badly lacerated cervix and hard nodules in it, and where you can go up and take out nearly the whole of the uterus with the cautery knife, he thought it gave the best ultimate results.

BOOK REVIEWS.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, A.M., M.D., Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Northwestern University Medical School, Chicago; Attending Physician to Mercy, Wesley Hospitals, etc. Illustrated with 101 engravings and 19 plates. Lea Brothers & Co., Philadelphia and New York, 1907.

This book is practically a system of medicine condensed into 1,277 pages; it is in its first edition, and is interesting as giving the viewpoint of Dr. Edwards, who is Professor of the Principles and Practice of Medicine in one of the great Western universities. No book of the kind can be written without a great deal of the personal element entering into it; it is believed by the reviewer, however, that no book of the kind is complete without a description, at least, of the newer and more advanced methods of diagnosis, although it is not to be inferred from this that the author has omitted the methods of diagnosis but that they have not been accorded sufficient prominence in the work. The differential diagnosis is emphasized in many places by the use of differential tables, which are very carefully worked out. The author emphasizes the relation of pathology to the clinical symptoms, trying in every instance to give a logical explanation of the symptoms. Treatment is carefully considered. The book deserves an important place among the Systems of Medicine.

Practical Therapeutics. A Text-Book by Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; Member of the Committee of Revision of the U. S. Pharmacopœia of 1905. Twelfth edition, enlarged, thoroughly revised and rewritten. Lea Brothers & Company, Philadelphia and New York, 1907.

The work of Dr. Hare on "Practical Therapeutics" is written with special reference to the application of remedial measures to disease and their employment upon a rational basis. Eighteen months ago, the eleventh edition of this book appeared. The new features of this edition include a consideration of the value of citrate of sodium in the feeding of bottle-fed babies; the use of calcium lactate, hypodermically and by the mouth, in hemophilia, urticaria and oozing hemorrhage; the hypodermatic treatment of syphilis is more fully discussed; and the use of saline solutions of exact strength for intravenous injection is emphasized. The new drugs which have been introduced during the last two years are carefully considered. The eleventh edition of this work has been translated into the Italian and Chinese languages, which shows the general utility of the work. As a reference book for the use of any physician it is to be highly recommended, and as a companion book to Dr. Hare's "Text-Book of Practical Diagnosis" it is quite essential; there is no other work which quite takes the place of this text-book, and the reviewer feels no hesitancy in recommending it freely.

A Text-Book of the Practice of Medicine. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; Laureate of the Royal Academy of Medicine in Belgium and of the Medical Society of London. Author of "A Text-Book of Practical Therapeutics," "A Text-Book of Practical Diagnosis," etc. In one very handsome octavo volume of 1120 pages, with 131 engravings and 11 full-page plates in colors and monochrome. Second edition, revised and enlarged. Cloth, $5.00, net; leather, $6.00, net; half morocco, $6.50, net. Lea Brothers & Co., Philadelphia and New York, 1907.

In less than two years Hare's "Practice" has passed through two very large printings and now is presented in a second thoroughly revised edition. The author knows the needs of the undergraduate and the best mode of presenting a subject to his mind, by reason of the fact that he has been teaching clinical medicine and therapeutics for nearly a quarter of a century, and, aside from this, his extensive practice gives him the experience necessary for the presentation of such a comprehensive subject. The great characteristic of Dr. Hare's writings has always been the practical application of the knowledge presented. A second characteristic of the work is the clearness and conciseness with which everything is stated; the reader does not have to wade through pages of historical data, oft-repeated theories and unnecessary addenda in order to obtain an idea of the disease. The book is a fitting complement to the author's works on "Diagnosis" and "Therapeutics," and contains a consideration of those subjects usually found in all text-books on the practice of medicine.

System of Medicine. Edited by Thomas Clifford Allbutt, A.M., M.D., LL.D., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and Humphrey Davis Rolleston, A.M., M.D., F.R.C.P., and Physician to St. George's Hospital and to the Victorian Hospital for Children. Vol. I. The Macmillan Company, New York. 1905.

The present "System of Medicine," edited by Allbutt and Rolleston and contributed to by many writers, is by no means new. The first edition met with considerable success and has justified the edition of this revision. Volume I appeared towards the end of 1905, and contains two divisions—one, Prolegomena; two, Infections. The history of medicine has been written by Prof. Allbutt and Dr Payne, and is a short but interesting sketch of the subject, but many of the details of interest in the correlative branches of medicine do not find a place. An interesting chapter on Medical Statistics, by Dr. Tatham, follows. The work is unique in many ways in that it presents certain sides of medical work which other systems of medicine pass over with but slight mention. Some of these topics are as follows:

The Laws of Inheritance in Diseases; Medical Geography; Nursing; Physical Exercises; Life Assurance; The General Pathology of Nutrition.

The second division might be well included in a surgical treatise; septicemia and pyemia are treated by W. Watson Cheyne, and he goes over the old subject in very much the same style as has been done for many years. Erysipelas and tetanus follow, and the remaining portions of the treatise are devoted to medical infections. The book is so well known that it hardly needs commendation. Those who have never seen the work will be surprised at the amount of new facts and new views which it presents of some of the branches of medicine.

A Text-Book of Practical Gynecology. For Practitioners and Students. By D. Tod Gilliam, M.D., Emeritus Professor of Gynecology in Starling-Ohio Medical College; Gynecologist to St. Anthony and St. Francis Hospitals; Fellow of the American Association of Obstetricians and Gynecologists; Member of the American Medical Association, of the Ninth International Medical Congress, etc. Second, revised edition. Illustrated with 350 engravings, a colored frontispiece, and 13 full-page half-tone plates. 642 royal octavo pages. Sold only by subscription. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

The present work is written by Dr. D. Tod Gilliam, whose original idea seems to have been to produce a textbook for the use of those attending his clinics at the Starling-Ohio Medical School of Columbus; to make it more useful to the students, moot questions have been given scanty attention, and many of the finer points of gynecology which have no direct practical bearing have been omitted. The book is divided into fifty chapters, which correspond to the number of lectures and recitations usually given by Professor Gilliam during a collegiate term. In this, the second edition, there are not very many changes; the innovations in technique are the operation of Goffe for extensive cystocele, and that of Watkins for post-climacteric prolapse of the uterus. This last operation deserves special attention as the results of its proper application have been very satisfactory. The illustrations throughout the volume are very good; many of them are original. There are numerous typographical errors, which further revision will discover and rectify, and there is room for improvement in the chapters on diseases of the ureters and kidneys, the exposition of which demonstrates the lack of knowledge of the newer methods of diagnosis. As a book for students, there is too little pathology; but as a book for the practitioner, the work has much to recommend it.